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THESIS

AN EVALUATION OF THE PERCEIVED AND ACTUAL COST COMPARISONS OF COMMISSARIES: FORT ORD CASE

by

Jeffery Lynn Dearing

September 1984

Thesis Advisor: Frank E. Royer

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The data analyzed in this thesis is the result of an extensive empirical study of shelf prices gathered from the Fort Ord Commissary, California and is compared to the shelf prices of three commercial "chain" supermarkets in close proximity to Fort Ord.

A questionnaire was distributed to potential patrons of the Fort Ord Commissary to gather information on the perceptions of the commissary as a military benefit. The questionnaire responses and price data were then used to derive theoretical models which encompass the direct and indirect costs of grocery shopping.

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An Evaluation of the Perceived and Actual Cost Comparisons of Commissaries: Fort Ord Case

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I. INTRODUCTION

The purpose of this thesis is to ascertain the value of savings provided by the Fort Ord Commissary to its patrons. Currently, the civilian grocery industry poses a threat to commissaries within the Continental United States (CONUS). A group of business executives, including the president of Safeway, are trying to induce the Reagan Administration and the Congress to either close the 240 CONUS commissaries, prohibit military retirees from using the commissaries or allow private industry to manage them [Ref. 1].

Officials at the U.S. Army Troop Support Agency (TSA) predict that the Army Commissary System will set an all time sales record of $1.56 billion in fiscal year 1984. A Triennial Survey, conducted in 1981, throughout Army Commissaries in the United States, revealed an average customer savings of 24.91 percent. Customer awareness of available savings helped to increase sales while promotions, price reductions and coupons saved commissary customers $38,273,841 in 1982 [Ref. 2].

Some commissaries showed an increase in year-to-date sales but, most faced a decline in monthly sales figures for April 1984. Air Force Commissaries reported the highest year-to-date sales figures in military outlets. Through April 1984, $1,192.7 million was earned as compared to

$1,180.9 million for the same period in 1983. In comparison, monthly sales figures for April showed a drop of 8.1 percent.

Although Navy Commissaries reported an increase of 12.89 percent for year-to-date sales through April 1984, monthly sales for April dropped 14.1 percent compared to 1983. During April 1984, $59.05 million was earned and for the same period in 1983, $68.74 million was reported.

Army Commissaries also reported a year-to-date sales increase of 1.66 percent but, monthly sales during April 1984 decreased by .077 percent. Through April 1984, year-to-date sales were $924.6 million and through April 1983, $909.5 million was reported.

The only commissary outlet to show an increase in both year-to-date and monthly sales figures was the United States Marine Corps. They reported $11.78 million during April 1984 compared to $11.26 million reported in April 1983. Year-to-date figures showed an increase of 6.48 percent, through April 1984, with $85.98 million being earned through April 1984 and $80.75 million being reported for the same period in 1983. Table 1-1 presents a summary of commissary data [Ref. 3].

Chapter II presents the background of commissaries, specifically covering their inception during early frontier times; Congressional appropriation language and the criteria which authorizes the military departments to operate commissaries. A discussion of the proposed alternatives

to the present commissary system and their ramifications is also included.

The third chapter provides specific information about the Fort Ord Commissary and presents the rationale for the questionnaire and shelf price data. Subsequently, the identification of costs associated with grocery shopping will be assessed through the use of models to ascertain patron savings.

Chapter IV discusses the accumulation of data and analyzes the direct and indirect costs associated with shopping at either the commissary or the supermarket. Subsequently, a comparison of costs will be made and a hypothetical, perceived versus actual, savings value will be derived for each pay grade.

The last chapter presents data which determines the value that the Fort Ord Commissary is providing to its patrons. Also contained in this chapter are recommendations for additional research into patron savings provided by commissaries.

TABLE 1-1

CONUS COMMISSARY SALES (millions)

Service	April 1983	April 1984	% Change	YTD April 1983	YTD April 1984	% Change
Air Force	$ 172.87	$ 158.86	- 8.1	$ 1,180.90	$ 1,192.72	+ 1.00
Army	129.80	129.70	- .077	909.50	924.60	+ 1.66
Navy	68.74	59.05	-14.1	391.07	441.48	+12.89
Marines	11.26	11.78	+ 4.62	80.75	85.98	+ 6.48

Note: Fiscal Year 1984 began October 1, 1983 for commissaries

II. BACKGROUND

A. REVOLUTIONARY WAR YEARS (1775-1781)

The present system of military commissaries started with the organization of the Continental Army in 1775. While encamped at Cambridge in July 1775, General Washington was impressed with the method that Joseph Trumbull used in supplying the troops from Connecticut. Accordingly, General Washington requested that the Congress appoint Trumbull as Commissary General. Simultaneously, the Congress appointed committees to exercise fiscal control over the Army's supply departments [Ref. 4].

Trumbull had the authority and responsibility to provide rations for the troops and reported to General Washington directly. As the War escalated, the Congress felt that Trumbull needed support and appointed four deputies to him during July 1777. However, Trumbull felt that the new regulations subordinated his control and he regarded his assistants as hindrances to smooth operations. He, therefore, requested to be relieved as Commissary General.

The War spread from New England to the Mid-Atlantic Colonies and supplying rations to the troops became an increasingly complex problem. Foodstuffs eventually became scarce and, when available, were very expensive. Prices in 1780 were approximately twenty times greater than the

prices in 1774. These economic conditions of inflation and shortage led to profiteering by high priced peddlers referred to as sutlers.

The prices demanded by the peddlers reflected the rampant inflationary trend brought about when the Congress printed excess Continental Currency without firm backing by the newly formed Colonial American Government. Sutlers charged a "risk" premium when selling rations to troops on credit. This was done to recoup losses from death, desertion or unwillingness to pay [Ref. 5].

B. POST REVOLUTIONARY WAR YEARS (1782-1811)

Subsequent to Lord Cornwallis' surrender to Washington, at Yorktown in October 1781, public sentiment grew in opposition to the maintenance of a standing army during peacetime because it was incompatible with the principle of free government [Ref. 6].

Supplying provisions to the troops during the Revolutionary War was accomplished via contracts with civilian vendors. This method left the burden of delivery and distribution of supplies with the vendor which proved to be satisfactory. However, during the post-war years the contract system was characterized by embezzlement and fraud. Supplies were not delivered in a timely manner and spoilage of foodstuffs resulted. This bleak situation forced the frontier troops to rely solely on the sutlers. Then, the government officials and military commanders

began to recognize the role of the sutlers in supplying provisions to the troops and gave semiofficial recognition to the sutlers through a loosely controlled licensing system [Ref. 7].

A system of "military agents" was established in 1802. The military agents were civilians who purchased, received and delivered military stores for troops in their respective military department. This system was proven to be similar to the contract system and did not improve the timeliness in delivery or quality of the rations [Ref. 8].

C. WAR OF 1812 AND BEYOND (1812-1899)

The inadequacies in military subsistence were not addressed until the War of 1812 with Great Britain was imminent. In April 1812, the Treasury Department relinquished responsibility of the Commissary Department and it was reestablished in the Army, under the cognizance of the Office of Quartermaster General.

The title of Commissary Department was officially changed to the Subsistence Department at the end of the War. At the same time, the Congress enacted legislation to reduce the size of the Army and began to review the problems of subsistence that arose during the War.

Accordingly, the Committee on Military Affairs of the House of Representatives asked Acting Secretary of War, James Monroe, to assess subsistence problems in the Army. Instead of relying on his own judgment, Monroe asked for

testimony from senior ranking Army officials. General Winfield Scott felt that the problem in contracting for provisions was manifested in the political nature of the system. General Gaines conjectured that the Army had lost more men to spoiled rations than by hostile fire in the War of 1812. Colonel Fenwick emphasized the need for the Subsistence Department to be responsible to the field commanders and pointed out that the European Armies experimented with contract systems but met with little success and always returned to direct subsistence methods [Ref. 9].

The Secretary of War, John C. Calhoun, reorganized the Subsistence Department and the Procurement and issuance of provisions became a purely military operation. The Subsistence Department was very effective following its establishment in 1818 but, much of the success can be attributed to General George Gibson who served as Commissary General for 43 years, from 1818 until 1861. He was the driving force that expanded the Subsistence Department's operations from the Mississippi River westward to Oregon and California.

The variety of items that could be stocked by the Subsistence Department was restricted to an official list of rations. The items that comprised the daily ration were determined by the Congress. Items in the daily ration which were not in stock could be exchanged for cash. In 1825, the Congress authorized the Army to sell food, and other items, at cost to officers stationed at isolated frontier areas, establishing the first commissary stores [Ref. 10].

A War Department order caused the Subsistence Department to:

> Purchase reasonable quantities of the articles usually required for the subsistence of an officer, and cause the same to be forwarded to posts and stations remote from markets, where officers are mainly dependent upon the Subsistence Department for supplies, or where they cannot purchase groceries at reasonable prices. [Ref. 11]

In 1866 this authority was expanded to include enlisted personnel. As a result, a commissary was built at Fort Delaware, soon thereafter, commissary stores quickly increased and resembled civilian grocery stores of the era.

D. TWENTIETH CENTURY (1900-1984)

The Marine Corps opened its first commissary in 1909, the Navy in 1910 and the Air Force in 1947 [Ref. 12]. Commissaries in metropolitan areas are contrary to original Congressional intent. During hearings held in 1949 by the House Committee on Armed Services, an Assistant Secretary of the Navy, acting for the military departments, stated:

> Our concern is that at an isolated station where we do not have civilian stores, whose prices are kept in line by adequate competition, we must protect our people. Clearly, in Washington, New York, Philadelphia, Baltimore or any city where you have commercial facilities which sell commodities at reasonable prices, the need for the military to run its own shop (commissary stores) disappears.

At the close of the hearings, the Chairman, House Committee on Armed Services, stated:

> The whole theory of the commissary privilege was originally to give it to the people who were at isolated stations who did not have the benefit of

> metropolitan sales. That is the whole theory and the only justification for it. It was never intended that the government should go in the business of providing for its personnel where they have the opportunity to go to a private place to buy.

An Armed Services commissary store regulation submitted to the Subcommittee, during the 1949 hearings, emphasized:

> Commissary stores shall not be authorized in areas where adequate commercial facilities are conveniently available and sell commissary merchandise at reasonable prices.

Accordingly, the Department of Defense (DOD) issued criteria for implementing the regulation and defined convenience, price and adequacy as follows:

1. Convenience--Commercial stores are not convenient when they are located more than ten miles from the base.

2. Price--Commercial store prices are considered to be unreasonable when they are twenty percent or higher than commissary prices.

3. Adequacy--Commercial stores are not adequate when they do not carry a full complement of items similar to those stocked by the commissary.

In 1953, the Congress required the Secretary of Defense to annually certify the need for commissaries. In July, of the same year, the Senate Committee on Appropriations reported:

> The Committee fails to find any justification for the continuation of commissaries at military installations which are surrounded by or which abut metropolitan areas. [Ref. 13]

In 1974, the Comptroller General found that commissaries were not needed at military bases in large metropolitan areas because food stores were reasonably close, food

store prices were reasonable because such stores operated on low profit margins and a reasonable complement of items were carried in commercial stores. As a result, the Committee recommended that the DOD close commissaries in metropolitan areas to reduce appropriated fund support. However, in 1976, the military maintained that all stores were needed and failed to identify any stores for closure [Ref. 14].

E. CONTEMPORARY ISSUES

The sole purpose and spirit of the operations of the Subsistence Department was to support troops in situations vital to our national interests. There were about one hundred military posts in 1835. Fort Leavenworth was the westernmost post, with most of the posts being located on the sea coasts. However, only 20 percent were considered to be in remote locales [Ref. 15].

Today it would be difficult to find a military base, in CONUS, that would fit the description of being remote from civilian grocery stores and, when civilians pay the market prices, then reasonableness of prices should not be a major issue. As summarized in Table 2-1, of the 258 U.S. commissaries surveyed in 1979, none were justified on the basis of adequacy; one was justified on the basis of convenience and of the remaining 257 commissaries, 108 were justified on the basis of price and 149 on a combination of price and other criteria.

TABLE 2-1

JUSTIFICATION FOR CONUS COMMISSARIES FOR 1979

Service	P	C	A	P, C and A	P and C	C and A	P and A	Total
Air Force	51	0	0	15	41	0	7	114
Army	23	0	0	14	25	0	10	72
Navy	28	1	0	0	25	0	6	60
Marine Corps	6	0	0	0	6	0	0	12
Total:	108	1	0	29	97	0	23	258
Percentage:	41.86	.4	0	11.24	37.60	0	8.92	

Key: P = Price C = Convenience A = Adequacy

Since 1953 not one commissary has been closed because it did not meet the criteria. As a matter of fact, the number of U.S. commissaries grew from 210, in 1953, to 265 in 1977; at least 109 (41%) were operated in locales classified, by the Census Bureau, as urban areas. In 1976 it was determined that 92 percent of all U.S. commissaries were within 10 miles of at least two commercial supermarkets [Ref. 16].

Efforts to pass operating costs on to the customer to reduce the taxpayer's burden started in 1879. Soon after the commissaries were opened for direct purchases by all ranks, the Congress added a 10 percent charge to the cost of all items, except tobacco, sold in commissaries. This additional charge was to cover spoilage, transportation, and other incidental costs. However, in 1844, a Congressional act removed the 10 percent charge and reestablished pricing on a cost basis [Ref. 17].

In 1952, the Congress required commissaries to become more self-sustaining in purchasing and maintaining operational equipment and supplies, transportation of goods, and to pay for utilities. To help alleviate this burden a surcharge was added to the shelf price of the individual item [Ref. 18].

Congress passed legislation, in 1974, to increase the surcharge to 3 percent for the purpose of generating funds to construct and improve commissary facilities. Subsequently, the surcharge was raised to 4 percent in 1976.

Congressional committees and members of Congress have been concerned about the increasing DOD budget, including the rising commissary subsidy costs. Congress has not reduced the appropriated fund subsidy but, have either directed or strongly implied that the subsidy must be reduced through efficient management and operating techniques. Congressional representatives, collectively, have not been swayed by the usual argument, offered by the military departments, that the commissary has become an implied fringe benefit.

Before 1967, the military departments considered the commissary fringe benefit as a factor in determining the need for and the amount of pay raises. However, the first Quadrennial Review of Military Compensation Panel, in 1967, recognized that the commissary benefit was no longer an appropriate element of compensation because it provided unequal benefits to military personnel and it would be an impractical obligation on the part of the Government. The Panel's report stated that the value of commissaries to military personnel varied depending on family size, income level, access to and availability of commissaries, and family consumption preferences. In summary, the Panel believed that if the commissary benefit were considered an element of compensation, then DOD would be placed in a position of paying cash to military members who did not have access to a commisary [Ref. 19].

The Government Accounting Office (GAO) implies that DOD does not have a moral commitment to provide commissaries

to retired personnel. Furthermore, the grocery industry perceives military retirees as bonafide civilians who would normally be shopping in a supermarket if commissaries weren't nearby. In 1983, the President's Private Sector Survey on Cost Control (PPSSCC) estimated that 60 percent of the customers at CONUS commissaries were retirees [Ref. 20].

The most current Congressional interest has not been toward eliminating the commissary system but in reducing the funding support for civilian personnel. However, if appropriated funds are removed, Congress believes that, for each dollar removed, the savings would be deceiving, because it would require more than a dollar in increased recruitment costs and possibly have an adverse effect on morale. The main concern is that a price spiraling effect may take place in many commisaries if they are required to absorb the personnel costs. This would require an escalation of either the shelf prices or the surcharge. The increase in cost could force many military customers to civilian grocery stores and would leave fewer commissary patrons to pay for the increased costs. It is believed that this situation would lead to an escalation of prices to a level of indifference where the patron would probably prefer to shop in the well-stocked, spacious and more modern commercial supermarkets [Ref. 21].

F. PROPOSED CHANGES

A DOD study group, formed in 1975, evaluated four possible organizational structures for improving commissary efficiency, organization, and operation, which were:

1. Create separate servicewide commissary management organizations.
2. Create one agency to operate all DOD commissaries.
3. Establish common management organizations for exchange and commissary operations for each service.
4. Operate commissaries under a Government-owned, contractor-operated arrangement.

The group concluded that the government-owned, contractor-operated arrangement (the type currently being lobbied for), was impractical because it would provide considerably less savings and that the common management of exchange and commissary operations for each service would be more costly than the present system. A single agency operation, it was concluded, would provide the greatest customer savings and overall cost reductions.

In 1975, an Office of Management and Budget (OMB) staff study initiated a system to reduce appropriated fund spending, emphasizing the need for improving commissary management. Therefore, management of Army and Air Force commissary systems were centralized under the Army Troop Support Agency (TSA) and the Air Force Commissary Service, respectively, in 1976 [Ref. 22].

G. ECONOMICS OF CHANGE

The main issue within the proposed alternatives was the possibility that the value of the commissary, as a fringe benefit, would be reduced. According to basic economic theory, an increase in prices at the commissaries could produce a reduction in demand. However, the price elasticity of demand for commissary items is influenced by the availability of substitute goods provided by the civilian supermarkets. This would determine the extent to which customers would no longer patronize the commissary. Figures 2-1 and 2-2 depict how an increase in price, to recover operating costs, could affect the demand for commissary goods. Average operating costs correspond to those costs that would be absorbed by the commissary patron. Figure 2-1 illustrates the effect of a price increase at a commissary in a location which provides much competition from nearby grocery stores.

A commissary in a highly competitive environment may be unable to reduce operating costs enough to keep the commissary in operation. Accordingly, if operating costs cannot be curtailed the commissary will fail to operate as a "going concern" and will be forced to close. As the surcharge is increased, to cover average operating costs, the demand for commissary goods is reduced from D1 to D3 as depicted in Figure 2-1. Furthermore, the commissary with little competition, Figure 2-2, may initially charge

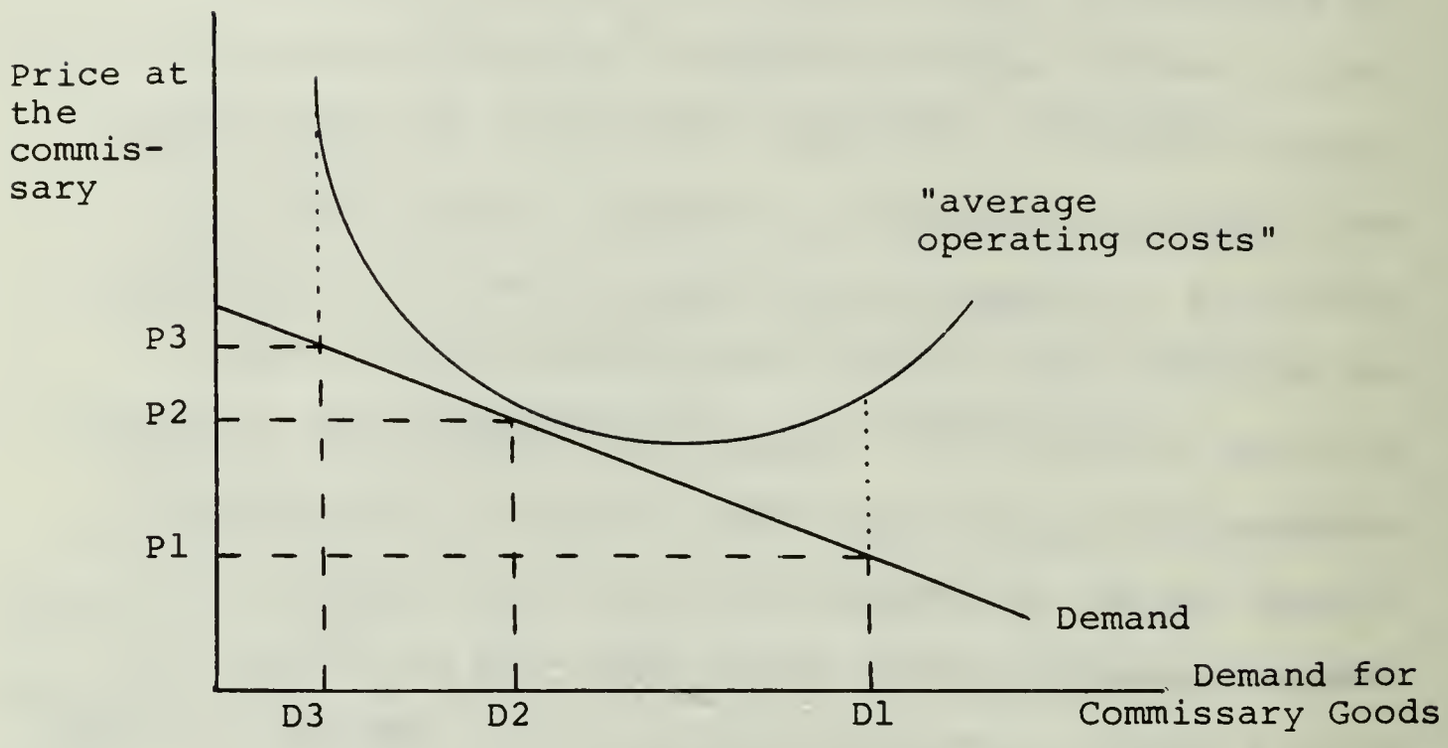

Figure 2-1. Highly Competitive Market Environment

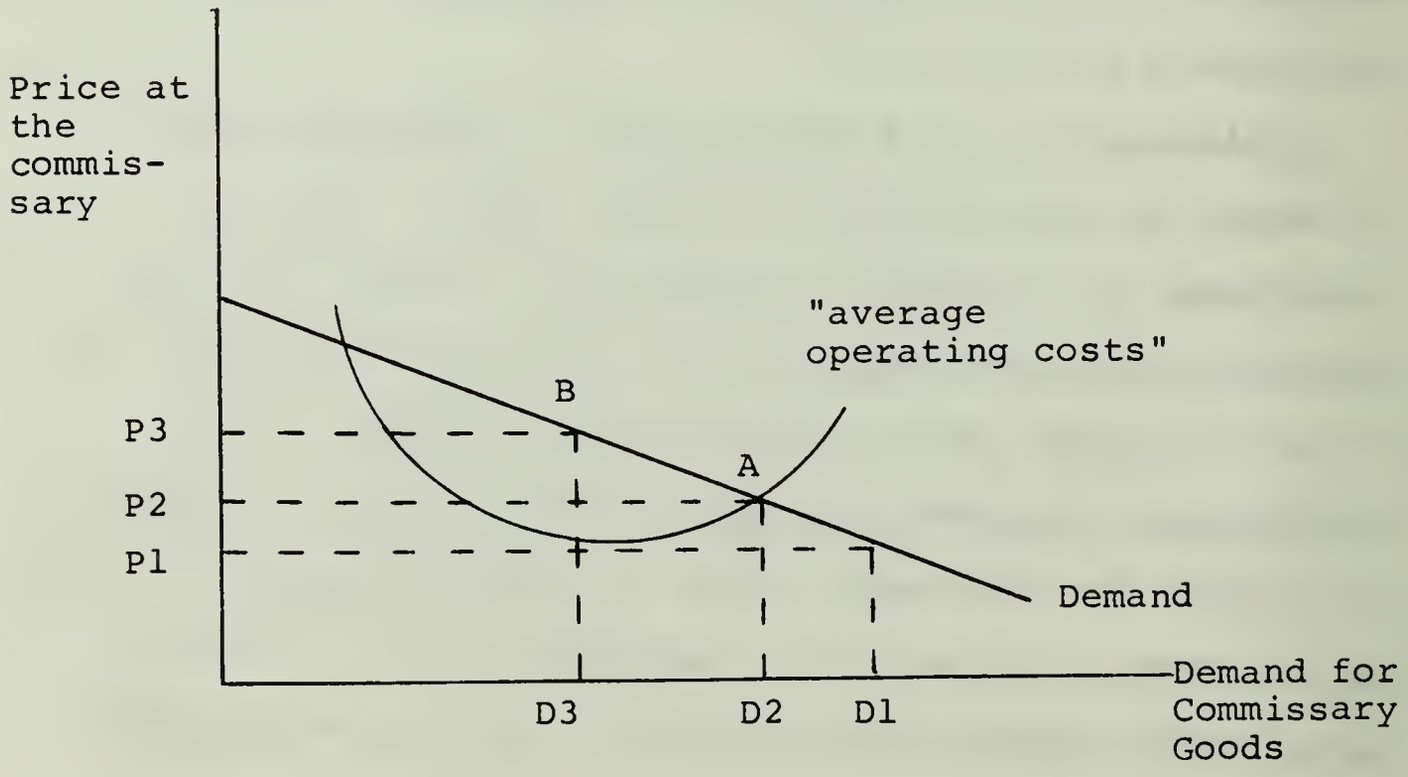

Figure 2-2. Market Environment with Little Competition

a price, P1, that fails to cover average operating costs with demand located at D1. But as prices continue to rise, the commissary will reach a breakeven situation at point "A" and could possibly generate revenue in excess of average operating costs, if permitted to, at point "B" [Ref. 23].

Each of the proposed alternatives would probably have some negative effect on morale in the military, and to diminish the commissary benefit, in any form, would be viewed as a breach of faith by active duty personnel and military retirees [Ref. 24]. The amount and frequency of the surcharge increases have not significantly reduced the value of the commissary as a perceived military benefit. A slow, but calculated, method of increasing the surcharge seems to have been implemented to help make the commissaries more self-sustaining and to minimize the impact on the disposable income of those who utilize the commissary. In addition to the alternatives noted above, there is current lobbying, by the grocery industry, to have Congressional legislation introduced that will alter or eliminate the present commissary system.

H. SAVINGS INFORMATION

Commissaries are among the ten largest retail food sales organizations in the United States with annual sales in excess of $3 billion [Ref. 25]. The commissary system operates supermarket type grocery stores for families of

active duty members, retired personnel and certain civilian employees. Commissaries can sell groceries, meats and produce at market prices averaging 25 percent less than commercial supermarkets. The main reason for this savings is that commissary operating costs are exempt from most taxes [Ref. 26].

In 1976 the value of the commissary privilege as a percentage of savings, using weighting factors representing the number of times per year that an "average family" would purchase a certain grocery item, was changed. The current method uses two supermarkets to provide price comparisons, and are chosen on the basis of size and location [Ref. 27].

In 1972 the Triennial Survey reported an average savings of 24.25 percent for all commissaries. The Army reported 24.55 percent average in 1975 and the Triennial Survey reported that U.S. commissaries averaged savings of 24.91 percent in 1981 [Ref. 28].

A market basket comparison of local supermarket prices to the commissary prices was conducted in 1984 by Fort Ord Commissary management, and revealed that the identical items when purchased at the supermarket would cost $183.24 as compared to $125.92 when purchased at the commissary. This amounted to a patron savings of $57.32 or 31.28 percent [Ref. 29].

A literature search neither revealed a detailed explanation of how the percentage of savings is determined, nor

how the items used for price comparison were selected in the Triennial Survey. However, there appears to be a slight upward trend in the percentage of savings when patrons shop at the commissary.

The preceding information and trend analysis indicate that commissary savings may be misleading because only two supermarkets are used for comparison and price comparisons are made every three years. In areas where competition between supermarkets is intense, the percentage of savings may be lower than the occasional and infrequent price comparisons suggest.

Furthermore, the results of these surveys have been challenged by patrons because the price comparison surveys are made by comparing national brand merchandise. The rationale is that the commissary store customers could purchase "house brand" or generic items, rather than the national brands, at a lower price. It is also conjectured that specials and loss leaders are not considered either. Therefore, the actual savings in commissaries may decrease real savings by 5 percent below what is reported in the Triennial Surveys.

In summary, this chapter has described the history of the commissary system starting with the early frontier era, the specific appropriation language and criteria that authorized the military to operate commissaries and the Congressional action to oversee commissary operations.

More recently, the Congress has been concerned about the huge annual appropriated fund support, averaging $394 million, but has indicated that it has no intention of closing any commissary stores. Accordingly, a decision to completely eliminate appropriated fund support, forcing commissaries to be fully self-supporting, could initiate a price spiraling condition that may result in the closure of many commissaries. The Congress has stated that commissaries must institute more efficient operating techniques to compensate for the eventual increase in costs if it is to continue offering savings to its customers.

Actual savings are important, but customers often base their decisions on perceived savings. To quantify what military personnel perceive commissary savings to be, several separate studies were conducted by the Army and Navy in 1975. The conclusion, from a review of these studies, is that many commissary store patrons believe that the savings achieved when purchasing in commissary stores are less than they actually are. For example, 35 percent of the persons surveyed DOD-wide, perceived savings to be less than 10 percent.

Given this background, Chapter III will introduce the research site and identify the costs associated with grocery shopping. After the identification of costs, models will be developed for the purpose of determining actual and perceived savings.

III. RESEARCH METHODOLOGY

Determining the savings provided by the Fort Ord Commissary as compared to the private sector supermarket is the intent of this thesis. The identification of cost values associated with shopping at either the commissary or the supermarket will be determined through the collection of questionnaire and shelf price data. Subsequently, the cost values will be applied to several models to quantify the savings provided by the Fort Ord Commissary to its customers.

A. DESCRIPTION OF RESEARCH SITE

The Fort Ord Commissary is located approximately 10 miles north of, and practically adjoining, the Monterey metropolitan area, via intrastate highways and the Monterey-Salinas Transit System. In this area there are at least four commercial supermarket "chain" stores and many privately owned grocery stores. There are, at a minimum, three convenience food store chains also. The area seems to be crowded with grocery stores and does not seem to be dominated by a few big "chain" type stores. Fort Ord and Monterey are located near the Salinas Valley, an area known as "the salad bowl," where many varieties of produce are grown, processed and packaged. Intuitively, this could

mean that Fort Ord is located in a relatively low-cost food area.

Constructed in 1973, the Fort Ord Commissary resembles any large commissary operated by the armed services. It is justified, to the Congress, on the basis that local supermarket prices are unreasonably high. It comprises 23,000 square feet of sales space, permitting approximately 6500 different items to be stocked. A warehouse is located adjacent to the main store and occupies an additional 36,000 square feet of storage space where an estimated two-weeks supply of each item is stored. The main store and warehouse permit an average inventory well in excess of $1 million. The transportation and delivery of the store items is provided under contract with several commercial distribution firms. Other items, such as soft-drinks, snack foods, bread and milk are delivered and stocked directly by the respective vendors.

The Commissary has 15 checkout stands equipped with electronic cash registers which will be using the Universal Product Code (UPC) scanner, in January 1985, to facilitate a speedy checkout. Sales at the Fort Ord Commissary, for June 1984, are summarized in Table 3-1.

The management has limited the number of grocery baskets to approximately 200. This prevents the shopping area from being restricted to a standstill if more were allowed. Most people who shop at the commissary require a shopping

TABLE 3-1

MONTHLY SALES REPORT--COMMISSARY STORE

Fort Ord, California Month: June 1984

	CHARGE SALES	CASH SALES	TOTAL SALES	PERCENT OF SALES
GROCERY	$ 9,865	$1,943,757	$1,953,622	64.10
CIGARETTES	1,040	228,524	229,564	7.53
HLT & BTY AID	940	109,441	110,380	3.62
TOTAL GROCERY	11,845	2,281,722	2,293,567	75.25
MEAT	4,134	646,704	650,838	21.35
PRODUCE	3,464	99,899	103,363	3.40
NONSURCHARGE SALES	19,443	3,028,325	3,047,767	
SURCHARGE SALES	19,837	3,179,752	3,199,589	
SURCHARGE	394	151,427	151,821	

	NUMBER	TOTAL	AVG./DAY
WORKING DAYS	26		
NONSURCHARGE SALES		$3,048,162	$ 117,237
CUSTOMERS	52,286		2,011
CHECKS	23,450		$ 73,514
FOOD STAMPS	242	$ 7,866	$ 33
COUPONS		$21,854	$841
CASH REGISTERS	15		$7,816

cart, therefore, many patrons are forced to wait outside for an available cart. Limiting the carts to 200 does not eliminate the checkout lines from extending down through the shopping aisles nor prevent patrons from shopping and employees from restocking shelves.

Restocking is usually performed after working hours or early the following morning. A semiannual inventory forces the commissary to close for a day, but it is necessary to ascertain the total dollar amount of unexplained losses.

Items stocked are sold at cost, which includes transportation to the commissary. Sales can be categorized into three main areas: (1) produce, (2) meat and (3) grocery items which represent 4, 20 and 76 percent of sales, respectively. Quantity discounts are available through the distributors and price reductions are tendered when the distributor determines that a slow-moving item has been overstocked and occupying valuable storage and sales space. Meat and produce prices fluctuate to reflect current market conditions. Trimming and spoilage losses are inherent with meat and produce items, and "in-house" price adjustments are made to recover incidental costs. Operating expense, excluding appropriated labor costs, are recouped through a 5 percent surcharge on the total of the shelf prices. However, the mandatory surcharge exceeds the total operating expense of the Fort Ord Commissary [Ref. 30].

The revenue generated from the surcharge is controlled by Headquarters, U.S. Army Troop Support Agency, Fort Lee,

Petersburg, Virginia. The residual surcharge, in excess of the operating expense, is used to purchase and maintain equipment and modernize and construct new commissaries. Items carried in stock are financed through a DOD stock fund known as the Commissary Trust Fund. This is a revolving fund that is reimbursed by the commissary store when the merchandise is sold. Furthermore, civilian labor costs are subsidized, annually, through congressionally authorized and appropriated funds [Ref. 31].

B. APPROACH TO PROBLEM

A "commissary questionnaire" was randomly distributed to personnel stationed at Fort Ord, Naval Postgraduate School and Point Sur Naval Facility to ascertain information relating to shopping habits and perceptions about the Fort Ord Commissary. Survey participants were asked questions for the purpose of revealing necessary data for use in the cost and savings models. Some questions revealed information which identified perceptions and patron preference. Responses to these questions were used to compare actual and perceived savings and to obtain reasons for store loyalty.

In addition to the questionnaire, shelf price data was accumulated at three private sector supermarkets. The shelf price data will be used to determine the savings value provided to the patron of the Fort Ord Commissary.

1. Rationale for the Questions

Obtaining data relating to the patron's disposable income and military status was the intent of questions 1

through 3. The data obtained was used to assess the costs and identify savings associated with grocery shopping. It was necessary to identify the pay grade to compare actual versus perceived savings.

Gathering biographical data pertaining to the patron's marital status, sex and place of residence was the reason for questions 4 through 6. This category of questions was used to reveal the use of the commissary by married and unmarried patrons, the percentage of female and male survey participants and where the majority of the participants reside. This data ascertained who the family grocery shopper was and whether convenience is a factor in grocery shopping.

Ascertaining the family size and composition of pre-school age children was the basis for questions 7 and 8. This information was used to formulate an average per capita monthly food cost for each family. Having pre-school age children helped to determine who shops for groceries and whether the costs of grocery shopping are affected when child care costs are included. However, this issue will not be analyzed.

Identifying grocery shopping habits was the main intent of questions 9 through 11. Shopping habits of interest included who the family grocery shopper was, the shopping place used most frequently and the frequency of grocery shopping. This information was used in the cost models to calculate the monthly indirect costs of grocery shopping.

The spending habits associated with grocery shopping were determined in questions 12 through 14. This information ascertained the amount of the total food bill and how much was spent for meat and produce products. Responses to these questions were used to calculate the average monthly food purchase. The amount spent for meat and produce substantiated customer perceptions of these items when purchased at the commissary. The amount spent on fresh produce was of particular interest because of the presence of many "farmers markets" in the vicinity of the Commissary and the fact that produce accounts for only 4 percent of Fort Ord's total annual sales [Ref. 33].

Obtaining data concerning the time associated with shopping at the commissary was revealed in question 15 through 18. This series of questions ascertained the distance and amount of travel time from a patron's house to the commissary. These questions also revealed the length of time needed to find a parking space, wait in line and ultimately checkout after selections were made. These responses were incorporated into the cost models to ascertain the indirect cost of the patron's time associated with commissary shopping.

Very often patrons exhibit loyalty to a shopping establishment because they perceive the savings to be worthwhile. Accordingly, participants were asked to identify the percentage of savings (question 19) they believed

that the commissary was providing. Perceived savings was determined for each pay grade and compared to actual savings to determine the perceptual sequences in the patron's valuation of the commissary benefit.

Ascertaining data concerning the time associated with shopping at the supermarket was obtained in questions 20 through 23. These questions revealed the distance to the nearest supermarket and the length of travel time. Also determined was the length of time needed to find a parking space, wait in line and checkout. Responses to these questions were incorporated into the cost models to ascertain the indirect cost factor of time associated with supermarket shopping.

Questions 15 through 18 and 20 through 23 were not used to ascertain direct or indirect transportation costs in the cost models. These costs were not included because of the complexity of integrating depreciation expense, gas mileage and maintenance costs which vary with the type of vehicle driven. In addition, the indirect costs of shopping would have to consider whether "side trips" were made in conjunction with the grocery shopping trip.

The element of time, as an indirect cost, has an impact on shopping because shopping at the Fort Ord Commissary usually takes more time than shopping at a civilian grocery store. Therefore, the time-cost of shopping at the commissary tends to be greater than that of the supermarket and reduces customer savings.

Preferences associated with grocery shopping were identified in questions 24 through 26. These questions identified where a patron would shop if prices were equal in the commissary and the private sector supermarkets, patron preference for brand name items and preference of shopping times. These questions helped to identify store loyalty based on prices alone, whether a majority of patrons preferred store brands or generic items and whether patrons preferred to shop during paydays or other "peak" times. Responses showing trends could indicate that a savings study may be needed in these areas.

The last two questions identified the three most satisfactory and unsatisfactory aspects of shopping at the commissary, which highlighted reasons for store loyalty. These questions were not compared to the aspects of shopping at the supermarket because they did not have an impact on the cost or savings models.

Questionnaire participants were asked to comment on their perceptions of shopping at the Fort Ord Commissary. Comments were solicited for their possible identification of oversights in the questionnaire or insights associated with grocery shopping.

2. Rationale for the Research Sites

An extensive study was performed, comparing shelf prices, to ascertain an accurate and current average percentage of savings provided by the Ford Ord Commissary. The

Fort Ord area consists of many supermarkets and the number of alternative supermarkets are numerous. Three supermarkets, located in close proximity to Fort Ord, were selected for the actual price comparisons. The supermarkets are located where a majority of authorized commissary patrons reside. Two of the supermarkets, Alpha-Beta and Lucky, are regional "chains" and the third, Safeway, belongs to a national grocery store chain. The stores were selected on the basis of their location to the commissary and were approximately the same size as the Fort Ord Commissary. They were not selected on the basis of offering the best prices.

C. IDENTIFICATION OF COSTS

It was necessary to ascertain the costs associated with shopping for groceries to approximate an accurate percentage of savings. The shelf prices of the three supermarkets will be averaged and then compared to the identical item in the commissary. Costs of grocery shopping were categorized as direct, indirect or random.

1. Direct Costs

Costs where payment was required at the point of purchase were considered to be direct costs. They include the shelf price, commissary surcharge, California state sales tax, and the tip given to the bagger. The comparison of shelf price data will be presented and discussed in a

later chapter. It should be noted that Monterey County, California has a 6 percent sales tax which applies to everything except human foodstuffs.

The 5 percent commissary surcharge simply elevates the shelf price to its true purchase price. The surcharge is added after the shelf prices have been keyed into the cash register. For example, if the shelf price total of the items being purchased amounts to $100.00, then the surcharge would be $5.00 (.05 × $100) which would result in a final purchase cost of $105.00. The baggers, at the commissary, are incidental employees of the patron. Therefore, they expect to be paid for the services they render. Baggers at the supermarkets are store employees.

2. Indirect Costs

Those costs which do not require the immediate payment of money, at the point of purchase, are referred to as indirect costs. These costs consider distance to the shopping place, but more importantly, the value of time to the patron. Other miscellaneous indirect costs, which are not treated herein, include, but are not limited to: transportation and maintenance costs, consumption of petroleum fuels, the value of travel time and child care expenses.

3. Random Costs

Many non-monetary, variable costs can influence patron preference and are considered to be random costs. These costs may affect the choice of the shopping place in

a highly competitive market area. Some of these random costs, perceived by the patron, consider whether the produce is fresh, the prices are marked clearly, the store is clean or there is a good selection of meat. Costs such as these are qualitative and are perceived to be either satisfactory or unsatisfactory. Accordingly, non-quantitative values were assigned for these variables in questions 27 and 28 of the survey.

D. COST AND SAVINGS MODEL FORMULATION

Identifying the costs of shopping is a prerequisite to formulating the actual cost and savings models. Costs were compared on a monthly basis even though military personnel are paid bimonthly and sometimes shop for the majority of their groceries on a bimonthly basis. Estimates or actual values for the variables were needed before the models could be utilized. Accordingly, all direct cost variables were ascertained through actual price comparison data, with the exception of the bagger's tip, which was estimated as a percentage of the total monthly food bill based on an average commissary purchase.

Assigning a value to the actual time a patron spends shopping was theoretical. In that respect, the only income considered is that of the servicemember. The value of shopping time was assigned from the Composite Standard Military Rate Table (Table 3-2). The values in this table

TABLE 3-2

COMPOSITE STANDARD MILITARY RATE TABLE

1982 Hourly Rate

Pay Grade	Marines	Air Force	Navy	Army	Mean
O-10	$ 29.62	$ 29.00	$ 30.31	$ 29.63	$ 29.64
O-9	30.43	28.71	29.96	30.61	29.93
O-8	30.19	29.26	30.84	30.32	30.15
O-7	30.57	29.42	29.83	30.98	30.20
O-6	28.84	28.00	29.71	29.50	29.01
O-5	24.13	23.95	24.99	24.42	24.37
O-4	20.31	21.10	21.14	20.50	20.76
O-3	17.62	17.24	18.06	16.74	17.42
O-2	14.58	13.08	14.02	13.05	13.68
O-1	10.75	10.29	10.82	10.45	10.58
W-4	18.68	-	19.17	19.19	19.01
W-3	16.05	-	16.18	15.60	15.94
W-2	13.52	-	14.44	13.64	13.87
W-1	12.75	-	-	12.03	12.39
E-9	16.40	16.39	16.82	15.92	16.36
E-8	13.46	13.96	14.49	13.44	13.84
E-7	11.18	12.13	12.55	11.37	11.81
E-6	9.53	10.40	10.53	9.61	10.02
E-5	8.19	8.82	8.70	8.12	8.46
E-4	7.18	7.54	7.38	6.92	7.26
E-3	5.91	6.26	6.28	6.00	6.11
E-2	5.40	5.73	5.78	5.50	5.60
E-1	4.94	5.17	5.20	5.60	5.23

are used to recoup costs from various United States or foreign governmental agencies and private concerns when they utilize military personnel. Table 3-2 does not reflect the servicemember's estimated value to the service. It merely depicts the collective cost per member, considering base pay and allowances, special and incentive pay, travel costs and miscellaneous expenses [Ref. 32].

There was no feasible method to segregate satisfactory aspects of shopping form unsatisfactory aspects and assign a cost factor, therefore, some indirect costs and random costs were excluded from the models.

1. Cost Models

Formulating the cost models for shopping at the commissary (Equation 3-1) and the supermarket (Equation 3-2) consisted of developing equations that identified the pertinent costs of shopping for groceries. The theoretical cost of shopping at the commissary (Cc) includes the surcharge factor (Sc) of 5 percent and the tip given to the bagger (b) expressed as a percentage of the total shelf price purchase. The shelf price of the items being purchased (Pc_i) includes transportation costs of the item to the commissary and (Qc_i) is the quantity of the item being purchased. Also included is the total time utilized per commissary shopping trip (tc) and the frequency of monthly shopping trips (f). The final variable (r) is assigned to reflect the hourly cost of shopping at the commissary and the supermarket. Therefore, the patron's direct cost of shopping at the commissary can be expressed as:

$$[1 + (Sc + b)] \times \left[\sum_{i=1}^{n} (Pc_i \times Qc_i)\right]$$

while the indirect cost ($tc \times f$) is the monthly total time used to shop and when multiplied by (r) the hourly cost of

Equation 3-1

$$Cc = [1 + (Sc + b)] \times \left[\sum_{i=1}^{n} (Pc_i \times Qc_i)\right] + (tc \times f)r$$

Key:
- Cc = cost of shopping in military commissary
- Sc = surcharge factor (1.05) in military commissary
- b = bagger's tip at the commissary
- Pc_i = shelf price of each item in the commissary
- Qc_i = quantity of each item purchased in the commissary
- tc = actual total time per shopping trip to the commissary
- f = frequency of shopping trips made to the commissary each month
- r = hourly rate value assigned to actual shopping time

shopping, it produces the total cost of shopping at the commissary. Accordingly, the full cost model is expressed as:

$$Cc = [1 + (Sc + b)] \times [\sum_{i=1}^{n} (Pc_i \times Qc_i)] + (tc + f)r$$

Similarly, the average cost of shopping at the supermarket, (Cs), begins with the average shelf price of the non-taxable item ($\overline{NPs}_i$) in all three supermarkets. The quantity of the non-taxable item being purchased is expressed as (NQs_i). In addition, the California state sales tax factor (1 + Ss) is multiplied by the average shelf price of the taxable item ($\overline{TPs}_i$) and the quantity of the taxable item purchased (TQs_i). Furthermore, the total time utilized per supermarket shopping trip is denoted as (ts) while (f) is the frequency of shopping trips per month and (r) still denotes the hourly cost of shopping.

Therefore,

$$\sum_{i=1}^{n} (\overline{NPs}_i \times NQs_i)$$

determines the total average shelf price cost to the consumer when purchasing non-taxable items, where:

$$(1 + Ss) \times [\sum_{i=1}^{n} (\overline{TPs}_i \times TQs_i)]$$

Equation 3-2

$$Cs = \sum_{i=1}^{n} (\overline{NPs}_i \times NQs_i) + [(1 + Ss) \times [\sum_{i=1}^{n} (\overline{TPs}_i \times TQs_i)]] + (ts \times f)r$$

Key:
- Cs = cost of shopping at the supermarket
- $\overline{NPs}_i$ = mean shelf price of a nontaxable item in the supermarket
- NQs_i = quantity of the nontaxable item purchased in the supermarket
- Ss = California state tax rate factor of 1.06
- $\overline{TPs}_i$ = mean shelf price of a taxable item in the supermarket
- TQs_i = quantity of the taxable item purchased in the supermarket
- ts = actual total per shopping trip at the supermarket
- f = frequency of shopping trips made to the supermarket each month
- r = hourly rate value assigned to actual shopping time

calculates the total average shelf price cost of taxable items, and (ts × f) ascertains the monthly total time spent shopping at the supermarket and, when multiplied by (r), estimates the total time value cost to the consumer.

Accordingly, the full cost model for shopping at the supermarket, Equation 3-2, is:

$$Cs = \sum_{i=1}^{n} (\overline{NPs}_i \times NQs_i) + [(1 + Ss) \times [\sum_{i=1}^{n} (\overline{TPs}_i \times TQs_i)]] + (ts \times f)r$$

2. Savings Models

Determining the average percentage of direct cost savings, provided by the commissary, is calculated using the average direct cost of non-taxable items in the three grocery stores ($\sum_{i=1}^{n} [NP1_i + NP2_i + NP3_i]/3 \times NQs_i$). Determining the average direct cost of taxable items is expressed as

$$(1 + Ss) \times \sum_{i=1}^{n} [TP1_i + TP2_i + TP3_i]/3 \times TQs_i .$$

To determine the direct cost savings of shopping at the commissary, the direct cost of shopping at the commissary, $[1 + (Sc+b)] \times \sum_{i=1}^{n} (Pc_i \times Qc_i)$, must be subtracted from the sum of the average direct cost of shopping at the supermarket and the sum of the taxable and non-taxable costs, then divided by the average direct cost of shopping at the supermarket.

The result is multiplied by 100 percent, and produces the average percentage of savings/dissavings when shopping at the commissary as Equation 3-3 depicts. Equation 3-4 is a reduction of Equation 3-3 where $\overline{NPs}_i$ and $\overline{TPs}_i$ are the average private sector supermarket shelf prices for the ith item of either the non-taxable or taxable item, respectively.

In summary, this chapter has provided information concerning the Fort Ord Commissary, its management and its location to adequate markets in the Monterey, California area. The identification of direct, indirect and random costs associated with grocery shopping were also discussed. Subsequently, the direct and indirect costs were explained and incorporated into models which calculate a percentage of savings that the commissary provides to its patrons.

Thus far, this thesis has identified the costs associated with shopping and has developed models to ascertain patron savings. Given this background, Chapter IV will discuss the accumulation and analysis of questionnaire and shelf price data, and utilize the models to determine the values of the commissary benefit.

Equation 3-3

$$APS = \frac{\sum_{i=1}^{n}\left[\frac{NP1_i+NP2_i+NP3_i}{3}\times NQs_i\right] + \left[(1+Ss)\times\sum_{i=1}^{n}\left[\frac{TP1_i+TP2_i+TP3_i}{3}\times TQs_i\right]\right] - [1+(Sc+b)]\times\sum_{i=1}^{n}(Pc_i\times Qc_i)}{\sum_{i=1}^{n}\left[\frac{NP1_i+NP2_i+NP3_i}{3}\times NQs_i\right] + \left[(1+Ss)\times\sum_{i=1}^{n}\left[\frac{TP1_i+TP2_i+TP3_i}{3}\times TQs_i\right]\right]}\times 100$$

Key: APS = average percentage of savings

$NP1_i$ = nontaxable item shelf price at the private sector supermarket

NQs_i = the quantity of the nontaxable item purchased at the supermarket

Ss = California State sales tax factor of 1.06

$TP1_i$ = taxable item shelf price at the supermarket

Sc = commissary surcharge factor of 1.05

b = bagger's tip factor at the commissary

Pc_i = shelf price of the item at the commissary

Qc_i = quantity of item purchased at the commissary

Equation 3-4

$$APS = \frac{\sum_{i=1}^{n} (\overline{NPs}_i \times NQs_i) + \left[(1+Ss) \times \sum_{i=1}^{n} (\overline{TPs}_i \times TQs_i) \right] - [1 + (Sc+b)] \times \sum_{i=1}^{n} (Pc_i \times Qc_i)}{\sum_{i=1}^{n} (\overline{NPs}_i \times NQs_i) + \left[(1+Ss) \times \sum_{i=1}^{n} (\overline{TPs}_i \times TQs_i) \right]} \times 100$$

Key:

APS	=	average percentage of savings
$\overline{NPs}_i$	=	mean shelf price of nontaxable items at the supermarket
NQs_i	=	quantity of nontaxable item purchased at the supermarket
Ss	=	California State sales tax factor of 1.06
$\overline{TPs}_i$	=	mean shelf price of taxable items at the supermarket
TQs_i	=	quantity of taxable item purchased at the supermarket
Sc	=	commissary surcharge factor of 1.05
b	=	bagger's tip factor at the commissary
Pc_i	=	shelf price of item in the commissary
Qc_i	=	quantity of item purchased at the commissary

IV. DATA ACCUMULATION AND ANALYSIS

Data accumulated for this thesis was obtained through the use of a relatively short questionnaire and by collecting shelf price data. The questionnaire was designed for military patrons in proximity to the Fort Ord Army Base and the shelf price data was collected from three area supermarkets. The questionnaire data were collected during the last two weeks of July 1984, whereas the shelf price data were obtained on Tuesday, Wednesday and Thursday, July 17th, 18th and 19th, 1984.

A. THE QUESTIONNAIRE

The main purpose of the questionnaire was to provide a data base which would identify grocery shopping idiosyncrasies of patrons who potentially utilize the Fort Ord Commissary. Questionnaires were distributed to personnel residing at the La Mesa officer housing area, serving the Naval Postgraduate School, Fort Ord enlisted housing areas and to patrons standing in the waiting line at the entrance to the Fort Ord Commissary. Each questionnaire was hand delivered, by the author, and explained to each potential respondent. Questionnaires delivered to the housing areas were retrieved by the author the day following distribution. Accordingly, questionnaires distributed at the Fort Ord Commissary were collected as the customer entered the facility.

The final questionnaire design (Appendix A) was comprised of 28 questions. The design facilitated ease of completion and required a relatively short period of time to complete. Each question was included because of its perceived potential to reveal pertinent shopping habits necessary to compare the benefit provided by the commissary with private sector supermarkets. The questionnaire data is compiled in Appendix B. It contains enlisted, officer and combined total responses with their respective percentage listed by question response. The questionnaire also asked respondents for their perceptions of the Fort Ord Commissary and they are contained in Appendix C.

B. SHELF PRICE DATA

A list of grocery items, similar to that used previously by the Air Force Commissary System, was used as the basis to gather shelf price data. Lists used by the commissary systems to compare shelf prices, change according to consumer demand. Therefore, a standard list of items does not exist. Since food prices change frequently, an attempt was made to gather all shelf price data as expeditiously as possible. This helped to ensure that a fair comparison was made. Accordingly, the shelf price data was collected on the 17th, 18th and 19th of July 1984.

This thesis utilizes 157 different items for comparison purposes and they are categorized as produce products (11), meat products (21), dairy products (10), frozen food (10),

grocery products (81), household goods (15) and health and beauty aids (9). While price data at the commissary is usually compared to two supermarkets by the commissary services, this study uses price data from three private sector supermarkets to ascertain a more accurate percentage of savings.

The private sector supermarkets used for the shelf price comparisons were selected on the basis of their location to a majority of military personnel. They were approximately the same size as the Fort Ord Commissary physically and in items stocked. Accordingly, the stores selected were (1) Safeway (PS1), located in Seaside, California between Monterey, California and Fort Ord; (2) Alpha-Beta (PS2), located near Fort Ord in Salinas, California and (3) Lucky (PS3), located in Monterey, near the La Mesa housing area serving the Naval Postgraduate School.

Subsequently, a prospective list of items was composed and a trip to the commissary was made to determine exactly which items would be used for the actual price comparisons. It was possible, however, that not all supermarkets would carry the identical items as the commissary and, therefore, some parameters had to be established. All items included in the categories of frozen food, grocery products, household goods, and health and beauty aids are exactly the same item in all shopping places. However, in the categories of produce, meat and dairy products, not all items are identical.

Therefore, using the "same name brand" parameter was not always possible. Consequently, the "same name brand" price comparison was changed to a subjective "same quality and amount" parameter, through item substitution. Subsequently, the prospective list was validated and the price comparisons of the three supermarkets commenced.

Appendix D contains the categorical lists of items used for the actual shelf price comparison study. Each category lists the item price by unit and, where applicable, brand name. The appendix also contains the shelf price (PC), surcharge (SC) and final purchase price (PC+SC) of each item at the commissary. The shelf prices of all items at each of the three private sector supermarkets (PS1, PS2 and PS3) and the average shelf price (PS $\overline{X}$) of individual items are also listed. The average supermarket price (PS $\overline{X}$) can then be compared categorically, to the commissary prices (PC+SC) to yield the average dollar savings (SAVE) and average percentage of savings/dissavings (APS) on each item when purchased at the Fort Ord Commissary.

Elementary economic theory would lead us to believe that when the cost of shopping at the commissary is less than the cost of shopping at the supermarket (Cc < Cs), there is a tendency to shop at the commissary. Conversely, the patron would utilize the supermarket when the cost of shopping at the commissary exceeds that of the supermarket (Cc > Cs). When the costs of shopping at the commissary and the supermarket

are equal (Cc = Cs), a patron should, theoretically, be indifferent about store loyalty.

C. VALUE OF PATRON TIME

The value of time to the patron is an important factor in the combined cost of groceries and is added to the purchase cost of the individual items. Estimation of the total actual time used while shopping at either the commissary or the supermarket can be determined from the responses to questions 16 through 18 and 21 through 23 on the questionnaire.

The average total time spent shopping at the commissary (tc) and at the supermarket (ts) are categorized by pay grade and are listed in Table 4-1. The total time needed to

TABLE 4-1

SUMMARY OF SHOPPING TIME

Pay Grade	$\overline{tc}$/Hr.	$\overline{ts}$/Hr.
O-5	1.50	1.02
O-4	1.14	.58
O-3	1.16	.50
O-2	.86	.55
O-1	1.05	.64
E-8	.53	.68
E-7	1.20	.79
E-6	1.09	.80
E-5	.96	.82
E-4	.98	.75
E-3	.95	.78
E-2	1.06	.57
E-1	1.20	.53

Key: $\overline{tc}$ = average time spent shopping at the commissary
$\overline{ts}$ = average time spent shopping at the supermarket

shop at the commissary considered the travel time from home, parking time, time to wait in line and time to check-out. Therefore, the total time to shop at the commissary is calculated using Equation 4-1 as follows:

$$tc = (2 \times \#16) + \#17 + \#18 \qquad (4\text{-}1)$$

The response to question #16 was doubled to account for the return trip home.

Similarly, the total time spent shopping at the supermarket considered travel time from home, parking time, time to wait in line, and time to checkout. The total time to shop at the supermarket can be calculated using Equation 4-2 as follows:

$$ts = (2 \times \#21) + \#22 + \#23 \qquad (4\text{-}2)$$

The response to question #21 was also doubled to account for the return trip home.

This information was used to determine the average time spent shopping for each pay grade which was calculated using Equations 4-3 and 4-4 as follows:

$$\overline{tc} = \sum_{i=1}^{n} [(2 \times \#16_i) + (\#17_i + \#18_i)]/n \qquad (4\text{-}3)$$

and,

$$\overline{ts} = \sum_{i=1}^{n} [(2 \times \#21_i) + (\#22_i + \#23_i)]/n \qquad (4\text{-}4)$$

where (i) refers to a respondent's answer to that question and (n) refers to the number of respondents in that pay grade.

The time required to select items from the shelves was assumed to be identical at each shopping place. However, it should be noted that the aisles in the commissary are one-way and narrower than the bi-directional and wide aisles in the supermarkets. Furthermore, crowding in the commissary is a problem that the supermarkets do not have to contend with. This would tend to indicate that the total number of items purchased in the commissary, then, would require more time to select than at the supermarket (tc > ts) resulting in decreased savings when shopping at the commissary.

The average number of grocery shopping trips for each pay grade is denoted as (f) and are compiled in Table 4-2.

TABLE 4-2

FREQUENCY OF SHOPPING

Actual Pay Grade	Average Trips Per Month
O-5	1.00
O-4	2.00
O-3	2.22
O-2	1.60
O-1	2.33
E-8	2.00
E-7	2.22
E-6	2.59
E-5	2.14
E-4	2.09
E-3	2.10
E-2	1.60
E-1	2.00

The calculation of (f) is accomplished by averaging the number of shopping trips per month for all respondents in each pay grade. The average number of shopping trips made each month will help determine the commissary benefit.

As stated earlier, the Hourly Composite Standard Military Rate Table (Table 3-2) will be used to assign a hypothetical value for (r) in determining the commissary benefit. The value assigned to total time spent while shopping (r) is theoretical and a possibility exists that different patrons may place different values on time spent shopping. This situation may exist because of the perceived aspects, satisfactory or unsatisfactory, associated with shopping or because patrons place different values on their personal worth.

D. THE VALUE OF THE COMMISSARY BENEFIT

An estimate for a monthly market basket of goods, purchased either in the commissary or a supermarket, will be used to determine average savings by pay grade. This method of estimating a value for the market basket of goods eliminates the need to ascertain a quantity (Qc_i), for each item. The market basket of goods is determined by multiplying the average family size (AFS) by the average monthly per capita food bill from Table 4-3. The average family size was rounded to the nearest hundredth for accuracy. The average monthly per capita food bill was determined by totalling the monthly food bill for each family, by pay

TABLE 4-3

MONTHLY MARKET BASKET VALUES

Actual Pay Grade	Average Family Size	Average Per Capita Outlay/Mo.	Market Basket Value/Mo.
O-5	3.00	$ 66.67	$ 200.01
O-4	3.83	72.17	276.41
O-3	3.21	75.19	241.36
O-2	2.60	71.54	186.00
O-1	4.00	71.67	286.68
E-8	2.00	200.00	400.00
E-7	3.89	87.14	338.98
E-6	4.62	69.03	318.92
E-5	4.38	64.10	280.76
E-4	3.37	68.39	230.47
E-3	3.79	53.09	201.21
E-2	3.20	44.38	142.02
E-1	4.00	65.00	260.00

grade, and then dividing the total by the number of people in each family by pay grade. For example, the Captains or Lieutenants (pay grade O-3) have an average family size of 3.21 and their monthly per capita food bill is $75.19. This equates to an average monthly market basket value of $241.36. Accordingly, if the percentage of savings, by shopping at the commissary, was 25 percent, then the monthly market basket value, when purchased at the supermarket, would be $321.81.

1. Average Monthly Savings

The estimated value of the commissary as a privilege (Cs-Cc) can be calculated for each pay grade. The commissary value (Cc) is calculated using Equation 4-5 as follows:

$$Cc = (AFS \times MFB) + (tc \times f)r \qquad (4\text{-}5)$$

where (AFS) is the average family size from Table 4-3, (MFB) is the average per capita monthly food bill from Table 4-3, (tc) is the average shopping time per trip from Table 4-1, (f) is the average number of shopping trips per month from Table 4-3, and (r) is the result by the hypothetical average hourly shopping cost from Table 3-2. Using the Captains or Lieutenants, pay grade O-3, as an example, the commissary value would be calculated to be:

$$Cc = (3.21 \times \$75.19) + (1.16 \times 2.22)17.42 = \$286.22.$$

In determining the value for shopping at the supermarket (Cs) Equation (4-6) will be used as follows:

$$Cs = (AFS \times MFB)/(1\text{-}APS) + (ts \times f)r \qquad (4\text{-}6)$$

The supermarket value uses the same factors for (AFS) and (MFB) but their product is divided by the average percentage of direct cost savings (1-APS), from Table 4-4, (ts) is the average shopping time per trip at the supermarket, obtained from Table 4-1, (f) is the frequency of trips to the supermarket per month, (r) is the average hourly shopping cost as described previously. For example, using pay grade O-3, the value for shopping at the supermarket is:

$$Cs = (\$241.36/.774) + (.50 \times 2.22)17.42 = \$331.18$$

Table 4-4

Unit Price Savings by Category

	$\sum_{I=1}^{N} E_{PC}$	$\sum_{I=1}^{N} E_{PS}$ $\bar{X}$
1. PRODUCE PRODUCTS		
SHELF PRICE TOTALS :	$ 3.99	$ 5.34
SURCHARGE & TIP/TAX :	.25	0
TOTAL DIRECT COSTS :	$ 4.24	$ 5.34
PERCENTAGE OF SAVINGS :		20.60%
2. MEAT PRODUCTS		
SHELF PRICE TOTALS :	$ 32.95	$ 43.09
SURCHARGE & TIP/TAX :	2.09	0
TOTAL DIRECT COSTS :	$ 35.04	$ 43.09
PERCENTAGE OF SAVINGS :		18.68%
3. DAIRY PRODUCTS		
SHELF PRICE TOTALS :	$ 11.25	$ 15.11
SURCHARGE & TIP/TAX :	.71	0
TOTAL DIRECT COSTS :	$ 11.96	$ 15.11
PERCENTAGE OF SAVINGS :		20.85%
4. FROZEN FOOD		
SHELF PRICE TOTALS :	$ 15.69	$ 21.74
SURCHARGE & TIP/TAX :	1.00	0
TOTAL DIRECT COSTS :	$ 16.69	$ 21.74
PERCENTAGE OF SAVINGS :		23.23%

5. GROCERY PRODUCTS

SHELF PRICE TOTALS :	$100.03	$136.14
SURCHARGE & TIP/TAX :	6.32	.74
TOTAL DIRECT COSTS :	$106.35	$136.88

PERCENTAGE OF SAVINGS : 22.30%

6. HOUSEHOLD GOODS

SHELF PRICE TOTALS :	$ 19.87	$ 27.67
SURCHARGE & TIP/TAX :	1.26	1.66
TOTAL DIRECT COSTS :	$ 21.13	$ 29.33

PERCENTAGE OF SAVINGS : 27.96%

7. HEALTH & BEAUTY AIDS

SHELF PRICE TOTALS :	$ 17.50	$ 24.10
SURCHARGE & TIP/TAX :	1.10	1.44
TOTAL DIRECT COSTS :	$ 18.60	$ 25.54

PERCENTAGE OF SAVINGS : 27.17%

A. TOTAL OF ALL CATEGORIES (INCLUDING ALL DIRECT COSTS) :

$$1.05 + .01 \left(\sum_{I=1}^{N} PC \right) = \$\ 214.01 \qquad \sum_{I=1}^{N} PS = \$\ 277.03$$

PERCENTAGE OF SAVINGS : 22.75%

B. TOTAL OF ALL CATEGORIES (SHELF PRICES ONLY) :

$$\sum_{I=1}^{N} PC = \$\ 201.28 \qquad \sum_{I=1}^{N} PS\ \bar{X} = \$\ 273.19$$

PERCENTAGE OF SAVINGS : 26.32%

Therefore, the average monthly savings generated by shopping at the commissary (Cs-Cc) is $44.96 as arranged in Table 4-5.

TABLE 4-5

AVERAGE MONTHLY SAVINGS

Pay Grade	Cs	Cc	Actual Value
O-5	$ 283.27	$ 236.57	$ 46.70
O-4	381.20	323.74	57.46
O-3	331.18	286.22	44.96
O-2	252.35	204.82	47.53
O-1	386.17	312.56	73.61
E-8	535.62	414.67	120.95
E-7	458.67	370.44	88.23
E-6	432.80	347.21	85.59
E-5	377.59	298.14	79.45
E-4	309.15	245.34	63.81
E-3	269.97	213.40	56.57
E-2	188.60	151.52	37.08
E-1	341.46	272.55	68.91

2. Unit Price List vs. Weekly Shopping List

A unit price list (Table 4-4) and a hypothetical weekly shopping list (Table 4-6) were analyzed to test the sensitivity of the percentage of savings when individual items were purchased in quantity as compared to a list of line items. There are two savings calculations (A and B) in the analysis provided. The (A) percentages include all direct costs to purchase the hypothetical list of items. The total direct cost at the commissary is $90.33. This includes the shelf price (PC) total of $85.08, surcharge (Sc) of $4.25 and bagger's tip of $1.00.

Table 4-6

Price Comparison Using a Hypothetical Weekly Shopping List

ITEM	PC	PS1	PS2	PS3	PS $\bar{X}$
1 CHUNKY SOUP (2)	1.86	2.58	2.62	2.42	2.54
2 VEG. SOUP (2)	.56	.90	.86	.74	.83
3 LG. EGGS DOZ.	.73	.88	.95	.91	.91
4 KRAFT SLICED CH	1.48	1.89	1.59	1.79	1.76
5 KRAFT BLOCK CH	1.34	1.89	1.95	1.89	1.91
6 PBRY. BISCUITS	.62	1.29	1.25	1.23	1.26
7 HEAD OF LETTUCE	.26	.33	.39	.29	.34
8 PACK OF CARROTS	.23	.59	.29	.19	.36
9 BANANAS (2 LB)	.56	.50	.78	.64	.64
10 APPLES (2 LB)	.66	1.70	1.58	1.30	1.53
11 LOG CABIN SYRP	2.41	3.45	3.17	3.14	3.25
12 SUGAR (5 LB)	1.59	1.97	1.93	1.96	1.95
13 CANNED SPAM	1.21	1.49	1.49	1.47	1.48
*14 TRASH BAGS	.98	1.99	1.69	1.59	1.76
*15 ALUMINUM FOIL	1.39	1.99	1.99	1.83	1.94
*16 PAPER TOWELS	1.34	1.98	1.94	1.78	1.90
*17 COCA-COLA 6-PK	1.26	1.89	1.89	1.81	1.86
18 MIN.MAID OJ (2)	3.30	3.90	4.26	4.18	4.11
19 BEEF HOT DOGS	1.35	1.89	1.95	1.87	1.90
20 BEEF BOLOGNA	1.74	2.58	2.58	2.26	2.47
21 GND. BEEF 2 LB	2.20	3.18	2.78	3.28	3.08
22 FRYER 3 LB.	2.07	2.97	2.37	1.83	2.39
23 T-BONE 3 LB.	8.85	10.77	11.37	9.24	10.46
24 PARKAY 2 LB.	1.24	1.66	1.46	1.32	1.48
25 LOFAT MILK 2GAL	2.76	3.30	3.90	3.68	3.63
26 WHITE BREAD (2)	.76	2.52	2.58	2.32	2.47
27 OREO COOKIES	1.36	2.39	2.39	2.26	2.34
28 HOT DOG ROLLS	.37	.59	.59	.59	.59
29 CRACKERS	.87	1.35	1.25	1.19	1.26
30 FROSTED FLAKES	1.80	2.55	2.39	2.29	2.41
31 WHEATIES	1.34	1.89	2.23	1.91	2.01
32 LT. BRN. SUGAR	.51	.61	.59	.61	.60
33 SUNMAID RAISINS	.83	1.39	1.39	1.19	1.32
34 PEAS 2-BOXES	1.46	2.46	2.58	2.22	2.42
35 FRENCH FRIES	1.60	2.19	2.29	2.13	2.20
36 HEINZ CATSUP	1.27	1.75	1.65	1.09	1.50
37 KRAFT MAYO.	1.63	1.79	1.99	1.69	1.82
38 PEACHES 2-CANS	1.08	1.78	1.74	1.74	1.75
39 CAN REG. COFFEE	4.59	4.69	4.69	4.69	4.69
40 CORN 2-CANS	.68	.94	.92	.86	.91
41 CRISCO 48 OZ.	2.98	2.99	2.69	3.19	2.96
42 BISQUICK	1.73	2.45	2.37	2.19	2.34
43 DORITOS	1.45	2.11	2.11	2.05	2.09
44 APPLE JUICE	1.27	2.39	2.19	2.17	2.25
45 BACON 1 LB	1.91	2.74	2.79	2.38	2.64
46 BABY FOOD 5 JAR	1.20	1.85	1.90	1.85	1.87

*47 WINSTON CIG.	5.71	8.49	8.55	8.65	8.56
*48 TIDE	2.95	3.29	3.69	3.72	3.57
*49 TOOTHPASTE	.95	1.15	1.79	1.14	1.36
*50 TAMPONS	2.57	3.79	3.30	3.69	3.59
SUBTOTALS:	$85.08	$117.70	$117.68	$110.45	$115.26
SURCHARGE & TIP:	5.25				TAX: 1.47
TOTAL DIRECT COST:	$90.33				$116.73

A. PERCENTAGE OF SAVINGS (INCLUDING DIRECT COSTS) : 22.62%

B. PERCENTAGE OF SAVINGS (SHELF PRICES ONLY) : 26.18%

* INDICATES THAT CALIFORNIA STATE SALES TAX IS APPLICABLE

The total direct cost at the supermarket is $116.73. It includes the average shelf price total (PS $\overline{X}$) of $115.26 and state tax of $1.47. Therefore, the hypothetical average direct cost savings is 22.62 percent when the patron shops at the commissary.

In comparison, the unit price list direct cost percentage of savings is 22.75 percent; the difference is .13 percent. Therefore, the percentage of savings does not appear to be sensitive to the purchase of several quantities of like items.

Similarly, the (B) percentages reveal the shelf price savings when the surcharge, state tax and tip are excluded. The total shelf price at the commissary is $85.08 while the average shelf price total at the supermarket is $115.26. Therefore, the hypothetical average shelf price cost savings is 26.18 percent when the patron shops at the commissary.

In comparison, the percentage of savings using the unit price list is 26.32 percent and the average shelf price percentage of savings difference is -.14 percent. This also signifies that the percentage of savings is not affected greatly when the surcharge, tax and tip are excluded.

3. Perceived versus Actual Savings

Table 4-7 shows the perceived and actual savings when the same value calculations are repeated using the average percentage of savings for each pay grade. For

TABLE 4-7

VALUE OF THE COMMISSARY BENEFIT

Pay Grade	Cc	Cs	Actual Value	$\overline{SP}$	Perceived Savings	Unrealized Loss/Gain
O-5	$ 283.27	$ 236.57	$ 46.70	12.00	$ 31.13	$ + 15.57
O-4	381.20	323.74	57.46	19.33	14.60	+ 42.86
O-3	331.18	286.22	44.96	18.88	14.23	+ 30.73
O-2	252.35	204.82	47.53	19.00	10.68	+ 36.87
O-1	386.17	312.56	73.61	27.00	22.32	- 22.32
E-8	535.62	414.67	120.95	17.00	34.87	+ 86.08
E-7	458.67	370.44	88.23	20.67	10.49	+ 77.74
E-6	432.80	347.21	85.59	14.17	40.34	+ 45.25
E-5	277.59	298.14	79.45	22.97	1.88	- 1.88
E-4	309.15	245.34	63.81	21.43	4.55	+ 59.26
E-3	269.97	213.40	56.57	18.79	12.16	+ 44.41
E-2	188.60	151.52	37.08	20.00	5.96	+ 31.12
E-1	341.46	272.55	68.91	6.00	59.32	+ 9.59

example, pay grade O-3 perceived their savings ($\overline{SP}$) to be 18.88 percent. Therefore, the hypothetical market basket value of $241.36 is divided by a factor of .811 (1-.1888), instead of .774 to derive the value when bought in the supermarket. Accordingly, pay grade O-3 perceived savings would have amounted to $14.23 instead of the hypothetical savings of $44.96 (Cs-Cc) on the average monthly basket of goods. This equates to an unrealized average monthly savings of $30.73 because pay grade O-3 perceived commissary savings to be less than it actually was.

4. Savings by Product Category

The average savings provided by the commissary in each product category can be computed two ways. The first comparison considers all direct costs (surcharge and tax/tip) incurred at the commissary and the supermarket. The direct costs of shopping at the commissary were compared to the average direct costs of shopping at the supermarket. The results of the comparison are arranged in Table 4-8.

TABLE 4-8

SAVINGS BY PRODUCT CATEGORY

Category	Avg. % Savings Direct Costs	Avg. % Savings Shelf Prices
Produce	20.60	25.28
Meat	18.68	23.53
Dairy	20.85	25.55
Frozen	23.23	27.83
Grocery	22.30	26.52
Household	27.96	28.19
Health & Bty	27.17	27.39

The second comparison considered only shelf prices (excluding surcharge, tax and tip). As illustrated in Table 4-8 when shelf prices alone are considered, the average savings by product category is greater.

The average direct cost savings range from 18.68 percent for meat products to 27.96 percent for household goods. Therefore, when the patron purchases meat from a supermarket the dissavings is the lowest for any product category. However, a patron's greatest dissavings is realized when household goods are purchased from the supermarket.

The range of average savings on shelf prices is from 23.53 percent for meat products to 28.19 percent for household goods. Accordingly, when surcharge, tax and tips are not considered, the patron realizes even greater savings when shopping at the commissary.

5. Savings: Commissary vs. Supermarkets

Up to this point the savings obtained by shopping at the commissary have been calculated using the average costs of the items at all supermarkets (PS1+PS2+PS3/3). This section reveals the average commissary savings, by category, when compared to each private sector supermarket individually. For comparative purposes, direct costs and shelf prices are included.

The items in each category were totalled to obtain the direct and shelf costs for each supermarket and were

compared to the commissary costs. Tables 4-9 and 4-10 reveal how much higher supermarket costs are, compared to Fort Ord Commissary costs. The percentage listed under each respective supermarket reveals the savings that the Commissary provides.

As an example, the 24.55 percent listed under Safeway in the grocery category (Table 4-9) illustrates that the direct cost of purchasing groceries at Safeway is 24.55 percent greater than the direct cost of purchasing the same items at the Commissary. In other words, when the patron purchases groceries at the Fort Ord Commissary instead of Safeway, a savings of 24.55 percent is realized.

TABLE 4-9

COMMISSARY DIRECT COST SAVINGS

Category	Safeway	Alpha-Beta	Lucky
Produce	28.88	26.52	19.72
Meat	25.55	25.87	18.78
Dairy	27.47	25.50	23.57
Frozen	29.83	29.13	24.28
Grocery	24.55	22.69	19.49
Household	27.46	30.33	25.94
Health & Bty	31.49	29.36	19.69

Likewise, the same comparison can be made with the shelf price data contained in Table 4-10. The 29.55 percent listed under Alpha-Beta in the Health and Beauty aids category (Table 4-10) illustrates that the shelf prices of

TABLE 4-10

COMMISSARY SHELF PRICE SAVINGS

Category	Safeway	Alpha-Beta	Lucky
Produce	28.88	26.52	19.72
Meat	25.55	25.87	18.78
Dairy	27.47	25.50	23.57
Frozen	29.83	29.13	24.28
Grocery	28.68	26.90	23.85
Household	27.69	30.55	26.16
Health & Bty	31.67	29.55	19.91

health and beauty aids at Alpha-Beta are 29.55 percent greater than the commissary shelf prices. In other words, the patron enjoys a shelf price savings of 29.55 percent when they do not purchase their health and beauty aids from Alpha-Beta.

In summary, this chapter discussed the collection of data and analyzed the direct and indirect costs to determine perceived and actual savings. The commissary was compared to three private sector supermarkets by product category and individual purchase prices, to ascertain the value that the Fort Ord Commissary provides to its patrons. Conclusions and recommendations concerning the findings of this study will be provided in Chapter V.

V. SUMMARY

This thesis analyzed the value of the Fort Ord Commissary as a military benefit to its patrons in the Monterey, California area. The applicability of the specific savings figures generated is admittedly narrowed to the patrons of the Fort Ord Commissary. However, the approach taken in this thesis can be applied at any military installation which operates a commissary with private sector competition.

This study presented the history of the commissary system and the justification for commissary stores. In 1949, the Department of Defense instituted specific criteria which is used as a basis for the justification of commissaries. Commissaries are justified because private sector supermarket prices are 20 percent or higher than the commissary, supermarkets do not carry an adequate supply of products or, supermarkets are located more than ten miles from the base.

A threat to the commissary system exists from the private sector grocery industry. It is attempting to introduce Congressional legislation that requires management of CONUS commissaries to be contracted with civilian firms, prohibits military retirees from utilizing CONUS commissaries, or closes CONUS commissaries altogether.

Measuring the savings provided by the Fort Ord Commissary, in relation to private sector supermarkets, was the

intent of this study. Accordingly, Safeway, Alpha-Beta, and Lucky were the three supermarkets chosen as reseach sites on the basis of their relative size and location to the military population.

The approach taken to obtain data for comparisons utilized a (1) 28 question survey which was distributed to potential patrons of the commissary to identify shopping habits and related information coupled with (2) an extensive shelf price comparison of 157 different items between the Fort Ord Commissary and three supermarkets. The questionnaire and shelf price data provided the values used in a direct cost, an indirect cost and a savings model to calculate the values of the commissary benefit to its patrons. These values provided data necessary to calculate (1) average monthly savings, by pay grade, (2) unit price list versus weekly shopping list savings, (3) perceived versus actual savings, by pay grade, (4) average percentage of savings by product category and (5) percentage of savings by product category over each individual supermarket.

A. CONCLUSIONS

Centered around the questionnaire and shelf price data, this study revealed that the average monthly savings for the enlisted pay grades were higher than for the officer pay grades. It is conjectured that this trend is related to the fact that the enlisted pay grades have a larger

average family size and their average monthly food bill is larger than the officer pay grades.

An analysis of perceived versus actual savings revealed that the majority of officers and enlisted patrons perceived commissary savings to be 17 percent or less. However, the actual percentage of savings was determined to be 22.8 percent. Therefore, this indicates that the majority of patrons are unaware of their actual savings. Accordingly, they are underestimating the savings value that the Fort Ord Commissary is providing, by at least 5 percent.

The average percentage of savings, by category, ranged from a low of 18.68 percent on meat products to a high of 27.96 percent on household goods. Comparing each supermarket, it was determined that the military patron's direct cost of purchasing groceries from Safeway, Alpha-Beta and Lucky were 27.89, 27.06 and 21.64 percent higher than the Fort Ord Commissary.

Examining the DOD criteria used to justify commissaries, it can be concluded that the Fort Ord Commissary is justified on the basis that (1) prices in the local area are 20 percent or higher than the Commissary. It could also be concluded that the Fort Ord Commissary cannot be justified on the basis of (2) adequacy because all supermarkets stock the same or similar items carried by the Commissary; and does not meet the criteria of (3) convenience, because several stores are located less than ten miles from the base and

the Monterey-Salinas Transit System provides regular service to areas containing private sector supermarkets.

The value of the Fort Ord Commissary in providing reasonable savings to authorized patrons is illustrated in Table 5-1.

TABLE 5-1

AVERAGE COMMISSARY SAVINGS BY CATEGORY

Category	Avg. % Saved
Produce	20.60
Meat	18.68
Dairy	20.85
Frozen Food	23.23
Grocery	22.30
Household	27.96
Health & Bty	27.17
Total Average Savings	22.97%

B. RECOMMENDATIONS

Since it was ascertained that the Fort Ord Commissary currently provides an average of 23 percent savings to its patrons and it was determined that a majority of the patrons surveyed (144/248) perceived savings of 17 percent or less, it is recommended that this information be disseminated to wives clubs and other civic groups and published in newspapers distributed by local military commands. Dissemination of this information could help to dispell erroneous perceptions of savings associated with

shopping at the Fort Ord Commissary and subsequently result in savings to the patron who was previously unaware.

In January 1985, the Fort Ord Commissary will implement the Universal Price Code (UPC) product scanning system. This optical scanner will read the bar code from the item being purchased and a computerized cash register will automatically total the customer's purchases. It would seem that this system could reduce the checkout time at the commissary, thereby increasing time and cost savings, because the conventional keying method of "ringing up" the total will be replaced.

Therefore, it is recommended that another savings study be accomplished after the UPC scanning system has been fully operational for a reasonable period of time. It would be interesting to ascertain whether checkout time is reduced, sales increase or customers have faith in the system. With the scanner system, items will no longer need to be individually priced, which translates to possible customer complaints that "prices are not clearly marked."

Waiting lines and crowded conditions were the major outcrys as unsatisfactory aspects of shopping at the Fort Ord Commissary. Reducing the shopping time could be transposed into monetary savings. However, a vast improvement in this area is unforeseen unless additional sales space is constructed onto the existing structure.

This thesis determined the value of the commissary benefit to the active duty family through the use of the military

member's pay scale. The data utilized to form the perceived and actual savings were predominantly inputted by non-military spouses of active duty personnel. This is substantiated by the fact that the non-military spouse is usually the family grocery shopper. In addition, research has revealed that approximately 60 percent of all commissary patrons are retirees. Accordingly, it is recommended that research be conducted to ascertain actual and perceived savings when the value of time and pay scale of the non-military spouse or retiree are considered. Research in these areas could reveal a different savings value for the active duty family and establish the value of the commissary to retired personnel.

APPENDIX A

QUESTIONNAIRE

INSTRUCTIONS: PLEASE CIRCLE THE LETTER OF THE APPROPRIATE RESPONSE. THANK YOU!

1. What is the present active duty or retired pay grade of the military member in your household?

   (A) E-1 (B) E-2 (C) E-3 (D) E-4 (E) E-5 (F) E-6
   (G) E-7 (H) E-8 (I) E-9 (J) O-1 (K) O-2 (L) O-3
   (M) O-4 (N) O-5 (O) O-6 (P) O-7 or above

2. How many years of active duty has the serviceperson in your family completed?

   (A) 2 or less (B) over 2 (C) over 3 (D) over 4
   (E) over 6 (F) over 8 (G) over 10 (H) over 12
   (I) over 14 (J) over 16 (K) over 18 (L) over 20

3. What is the serviceperson's current status?

   (A) on active duty (B) retired

4. What is your status?

   (A) married (B) single

5. What is your sex?

   (A) female (B) male

6. Where do you live?

   (A) Fort Ord (B) Presidio (C) La Mesa
   (D) other, city of _____

7. What is the size of your family, including yourself?

   (A) 1 (B) 2 (C) 3 (D) 4 (E) 5 (F) 6 (G) 7
   (H) 8 or more

8. How many of your dependents are less than 6 years of age?

   (A) 0 (B) 1 (C) 2 (D) 3 (E) 4 or more

9. Who does the grocery shopping most of the time?

(A) wife (B) husband (C) both of us
(D) I do, I am single (E) other _____

10. Where do you shop for most of your groceries?

(A) the commissary (B) local supermarket
(C) other _____

11. How often do you buy groceries for your family? (exclude convenience store items)

(A) each week (B) every 2 weeks (C) every 3 weeks
(D) once a month

12. According to the time period circled in #11, how much do you spend (on the average) for groceries? (total food bill)

(A) $50 or less (B) $60 (C) $70 (D) $80 (E) $90
(F) $100 (G) $110 (H) $120 (I) $130 (J) $140
(K) $150 (L) $160 (M) $170 (N) $180 (O) $190
(P) $200 (Q) $210 (R) $220 (S) $230 (T) $240
(U) $250 (V) $260 (W) $270 (X) $280 (Y) $290
(Z) $300 or more

13. Of your total food bill, how much do you spend on meat or meat products?

(A) less than $10 (B) $10-$19 (C) $20-$29
(D) $30-$39 (E) $40-$49 (F) $50 or more

14. Of your total food bill, how much do you spend on fresh produce?

(A) less than $10 (B) $10-$14 (C) $15-$19 (D) $20 or more

15. Approximately how far is the Ft. Ord Commissary from your home?

(A) less than 5 miles (B) 5-10 miles (C) more than 10 miles

16. How long does it take you to go from your home to the Ft. Ord Commissary?

(A) less than 10 minutes (B) 10-15 minutes
(C) 20-25 minutes (D) 30 min or more

17. After you arrive at Ft. Ord, how long does it take to park, get into the commissary and start shopping, on the average?

(A) 5 min (B) 10 min (C) 15 min (D) 20 min (E) 25 min
(F) 30 min or more

18. After making your selections, how long does it usually take to "check-out?"

(A) 5 min (B) 10 min (C) 15 min (D) 20 min
(E) 25 min (F) 30 min or more

19. Of your total food bill, what is the percentage you think you save by shopping at the commissary instead of the local supermarket?

(A) less than 10% (B) 10%-14% (C) 15%-19% (D) 20%-24%
(E) 25%-29% (F) 30%-34% (G) 35%-39% (H) 40%-44%
(I) 45%-49% (J) 50% or more

20. How far from your house is the nearest civilian "supermarket?"

(A) I don't know, I don't shop at the supermarket
(B) less than 5 miles (C) 5-10 miles (D) more than 10 miles

21. How many minutes does it take you to get to the nearest "supermarket?"

(A) less than 10 (B) 10-15 (C) 20-25 (D) 30 or more
(E) 0, I don't shop there

22. How long does it take you to park and start shopping at the "supermarket?"

(A) 5 min (B) 10 min (C) 15 min (D) 20 min (E) 25 min
(F) 30 min (G) I don't shop at the "supermarket"

23. How long does it normally take you to "check-out" at the "supermarket?"

(A) 5 min (B) 10 min (C) 15 min (D) 20 min (E) 25 min
(F) 30 min or more (G) I don't shop at the supermarket

24. If the commissary and the "supermarket" had the same prices, where would you shop?

(A) commissary (B) supermarket (C) other _____

25. What type of merchandise do you prefer most?

(A) name brands (B) store brands (C) no-name (generic) brands

26. Do paydays or holidays affect the total time it takes you to shop at the commissary?

(A) yes, I usually shop during these times

(B) yes, sometimes I shop at these times

(C) no, I don't usually shop during these times

(D) no, I don't shop at the commissary

27. What are the three <u>most satisfactory</u> aspects of shopping at the commissary?
Please place a: <u>1</u> beside the most satisfactory aspect
<u>2</u> beside the second most satisfactory aspect
<u>3</u> beside the third most satisfactory aspect

__A__ prices
__B__ convenience
__C__ selection of items
__D__ quality of meat
__E__ ease of check approval
__F__ other _____
__G__ well-stocked shelves
__H__ clearly marked prices
__I__ quality of produce
__J__ pleasant employees

28. What are the three most <u>un</u>satisfactory aspects of shopping at the commissary?
Please place a: <u>1</u> beside the <u>most unsatisfactory</u> aspect
<u>2</u> beside the <u>second most unsatisfactory</u> aspect
<u>3</u> beside the <u>third most unsatisfactory</u> aspect

__A__ parking
__B__ waiting lines to get in
__C__ selection of groceries
__D__ quality of meat
__E__ tipping the baggers
__F__ the crowded environment
__G__ other _____
__H__ quality of produce
__I__ store layout and size of aisles
__J__ poorly stocked shelves
__K__ unpleasant or discourteous employees
__L__ waiting lines to "check-out"
__M__ prices not clearly marked

Any comments you have concerning this questionnaire or the commissary are welcome.

THANK YOU!!!

APPENDIX B

RECAPITULATION OF QUESTIONNAIRE DATA

RESPONSE NUMBER		ENLISTED RESPONSE	PERCENT ENLISTED	OFFICER RESPONSE	PERCENT OFFICER	TOTAL RESPONSE	PERCENT OF TOTAL
1. ACTIVE OR RETIRED MILITARY PAY GRADE ?							
A	E-1	1	.7	-	-	1	.4
B	E-2	5	3.6	-	-	5	2.0
C	E-3	29	21.0	-	-	29	11.7
D	E-4	35	25.4	-	-	35	14.1
E	E-5	29	21.0	-	-	29	11.7
F	E-6	29	21.0	-	-	29	11.7
G	E-7	9	6.5	-	-	9	3.6
H	E-8	1	.7	-	-	1	.4
I	E-9	0	0	-	-	0	0
J	O-1	-	-	3	2.7	3	1.2
K	O-2	-	-	5	4.5	5	2.0
L	O-3	-	-	83	75.5	83	33.5
M	O-4	-	-	18	16.4	18	7.3
N	O-5	-	-	1	.9	1	.4
O	O-6	-	-	0	0	0	0
P	O-7+	-	-	0	0	0	0
TOTAL :		138	100.0	110	100.0	248	100.0
2. YEARS OF ACTIVE DUTY COMPLETED ?							
A	2 OR LESS	45	32.6	1	.9	46	18.6
B	OVER 2	18	13.0	1	.9	19	7.7
C	OVER 3	5	3.6	1	.9	06	2.4
D	OVER 4	10	7.3	20	18.2	30	12.1
E	OVER 6	15	10.9	42	38.1	57	23.0
F	OVER 8	7	5.1	20	18.2	27	10.9
G	OVER 10	15	10.9	10	9.1	25	10.1
H	OVER 12	6	4.3	6	5.5	12	4.8
I	OVER 14	4	2.9	6	5.5	10	4.0
J	OVER 16	5	3.6	0	0	5	2.0
K	OVER 18	4	2.9	1	.9	5	2.0
L	OVER 20	4	2.9	2	1.8	6	2.4
TOTAL :		138	100.0	110	100.0	248	100.0
3. SERVICEPERSON'S CURRENT STATUS ?							
A	ACTIVE	136	98.6	110	100.0	246	99.2
B	RETIRED	2	1.4	0	0	2	.8
TOTAL :		138	100.0	110	100.0	248	100.0

4. WHAT IS YOUR STATUS ?

A MARRIED	136	98.6	108	98.2	244	98.4
B SINGLE	2	1.4	2	1.8	4	1.6
TOTAL :	138	100.0	110	100.0	248	100.0

5. WHAT IS YOUR SEX ?

A FEMALE	95	68.8	81	73.6	176	71.0
B MALE	43	31.2	29	26.4	72	29.0
TOTAL :	138	100.0	110	100.0	248	100.0

6. WHERE DO YOU LIVE ?

A FT. ORD	107	77.5	04	3.6	111	44.8
B PRESIDIO	0	0	0	0	0	0
C LE MESA	0	0	101	91.8	101	40.7
D OTHER	31	22.5	5	4.6	36	14.5
TOTAL :	138	100.0	110	100.0	248	100.0

7. WHAT IS THE SIZE OF YOUR FAMILY, INCLUDING YOURSELF ?

A 1	1	.7	0	0	1	.4
B 2	23	16.7	27	24.5	50	20.2
C 3	17	12.3	35	31.8	52	21.0
D 4	51	37.0	39	35.5	90	36.3
E 5	36	26.1	8	7.3	44	17.7
F 6	8	5.8	0	0	0	3.2
G 7	0	0	0	0	0	0
H 8 OR MORE	2	1.4	1	.9	3	1.2
TOTAL :	138	100.0	110	100.0	248	100.0

8. HOW MANY OF YOUR DEPENDENTS ARE LESS THAN SIX YEARS OF AGE ?

A 0 OR N/A	43	31.2	36	32.7	79	31.9
B 1	35	25.4	45	40.9	80	32.3
C 2	45	32.6	27	24.6	72	29.0
D 3	14	10.1	2	1.8	16	6.4
E 4 OR MORE	1	.7	0	0	1	.4
TOTAL :	138	100.0	110	100.0	248	100.0

9. WHO DOES THE GROCERY SHOPPING MOST OF THE TIME ?

A	WIFE	84	60.9	83	75.5	167	67.3
B	HUSBAND	8	5.8	4	3.6	12	4.9
C	BOTH	44	31.9	22	20.0	66	26.6
D	SINGLE	2	1.4	1	.9	3	1.2
E	OTHER	0	0	0	0	0	0
TOTAL :		138	100.0	110	100.0	248	100.0

10. WHERE DO YOU SHOP FOR MOST OF YOUR GROCERIES ?

A	COMISARY	127	92.0	97	88.2	224	90.3
B	SUPERMKT	11	8.0	13	11.8	24	9.7
C	OTHER	0	0	0	0	0	0
TOTAL :		138	100.0	110	100.0	248	100.0

11. HOW OFTEN DO YOU BUY GROCERIES FOR YOUR FAMILY ?

A	EA. WEEK	27	19.6	27	24.6	54	21.8
B	2 WEEKS	93	67.4	46	41.8	139	56.0
C	3 WEEKS	5	3.6	14	12.7	19	7.7
D	MONTHLY	13	9.4	23	20.9	36	14.5
TOTAL :		138	100.0	110	100.0	248	100.0

12. HOW MUCH DO YOU SPEND (ON THE AVERAGE) FOR GROCERIES ?

A	$50 OR <	06	4.3	7	6.4	13	5.2
B	60	11	8.0	4	3.6	15	6.0
C	70	9	6.5	9	8.2	18	7.3
D	80	17	12.3	6	5.5	23	9.3
E	90	4	2.9	8	7.4	12	4.8
F	100	13	9.4	9	8.2	22	8.9
G	110	8	5.8	6	5.5	14	5.7
H	120	11	8.0	4	3.6	15	6.0
I	130	8	5.8	7	6.4	15	6.0
J	140	5	3.7	4	3.6	9	3.6
K	150	7	5.0	11	10.0	18	7.3
L	160	5	3.7	3	2.7	8	3.2
M	170	1	.7	2	1.8	3	1.2
N	180	3	2.1	4	3.6	7	2.8
O	190	2	1.5	2	1.8	4	1.7
P	200	9	6.5	4	3.6	13	5.2
Q	210	3	2.1	1	.9	4	1.7
R	220	2	1.4	0	0	2	.8

S 23Ø	Ø	Ø	4	3.6	4	1.7
T 24Ø	Ø	Ø	1	.9	1	.4
U 25Ø	5	3.7	3	2.7	8	3.2
V 26Ø	1	.7	Ø	Ø	Ø	.4
W 27Ø	Ø	Ø	1	.9	1	.4
X 28Ø	2	1.5	3	2.7	5	2.Ø
Y 29Ø	1	.7	Ø	Ø	1	.4
Z 3ØØ OR >	5	3.7	7	6.4	12	4.8
TOTAL :	138	100.Ø	11Ø	100.Ø	248	100.Ø

13. OF YOUR TOTAL FOOD BILL, HOW MUCH DO YOU SPEND ON MEAT ?

A < $1Ø	5	3.6	1	.9	6	2.4
B 1Ø-19	24	17.4	29	26.4	53	21.4
C 2Ø-29	26	18.8	21	19.1	47	19.Ø
D 3Ø-39	22	15.9	24	21.8	46	18.5
E 4Ø-49	18	13.1	13	11.8	31	12.5
F 5Ø OR >	43	31.2	22	20.Ø	65	26.2
TOTAL :	138	1ØØ.Ø	11Ø	1ØØ.Ø	248	1ØØ.Ø

14. OF YOUR TOTAL FOOD BILL, HOW MUCH DO YOU SPEND ON PRODUCE ?

A < $1Ø	47	34.1	37	33.6	84	33.9
B 1Ø-14	4Ø	28.9	41	37.3	81	32.7
C 15-19	23	16.7	12	1Ø.9	35	14.1
D 2Ø OR >	28	2Ø.3	2Ø	18.2	48	19.3
TOTAL :	138	1ØØ.Ø	11Ø	1ØØ.Ø	248	1ØØ.Ø

15. HOW FAR IS THE FORT ORD COMMISSARY FROM YOUR HOME ?

A < 5 MI.	115	83.3	1Ø	9.1	125	5Ø.4
B 5-1Ø	3	2.2	8Ø	72.7	83	33.5
C > 1Ø	2Ø	14.5	2Ø	18.2	4Ø	16.1
TOTAL :	138	1ØØ.Ø	11Ø	1ØØ.Ø	248	1ØØ.Ø

16. HOW LONG DOES IT TAKE YOU TO GO FROM HOME TO THE COMMISSARY ?

A < 1Ø MIN	1Ø9	79.Ø	12	1Ø.9	121	48.8
B 1Ø-15	8	5.8	77	7Ø.Ø	85	34.2
C 2Ø-25	3	2.2	18	16.4	21	8.5
D 3Ø OR >	18	13.Ø	3	2.7	21	8.5
TOTAL :	138	1ØØ.Ø	11Ø	1ØØ.Ø	248	1ØØ.Ø

17. HOW LONG DOES IT TAKE TO PARK, WAIT IN LINE AT COMMISSARY ?

A	5 MIN	20	14.5	4	3.6	24	9.7
B	10	20	14.5	22	20.0	42	16.9
C	15	30	21.7	29	26.4	59	23.8
D	20	22	15.9	28	25.5	50	20.2
E	25	18	13.0	11	10.0	29	11.7
F	30 OR >	28	20.4	16	14.5	44	17.7
TOTAL :		138	100.0	110	100.0	248	100.0

18. HOW LONG DOES IT TAKE TO CHECK OUT AT THE COMMISSARY ?

A	5 MIN	4	2.9	0	0	4	1.6
B	10	8	5.8	5	4.6	13	5.2
C	15	21	15.2	25	22.7	46	18.6
D	20	32	23.2	35	31.8	67	27.0
E	25	24	17.4	22	20.0	46	18.6
F	30 OR >	49	35.5	23	20.9	72	29.0
TOTAL :		138	100.0	110	100.0	248	100.0

19. PERCENTAGE YOU THINK YOU SAVE BY SHOPPING AT THE COMMISSARY ?

A	< 10%	16	11.6	11	10.0	27	10.8
B	10-14	38	27.5	16	14.6	54	21.8
C	15-19	27	19.6	36	32.7	63	25.4
D	20-24	27	19.6	24	21.8	51	20.6
E	25-29	7	5.1	12	10.9	19	7.7
F	30-34	10	7.2	8	7.3	18	7.3
G	35-39	4	3.0	1	.9	5	2.0
H	40-44	2	1.4	0	0	2	.8
I	45-49	5	3.6	2	1.8	7	2.8
J	50 OR >	2	1.4	0	0	2	.8
TOTAL :		138	100.0	110	100.0	248	100.0

20. HOW FAR FROM YOUR HOUSE IS THE NEAREST SUPERMARKET ?

A	DK/NA	15	10.9	6	5.5	21	8.5
B	< 5 MI.	59	42.8	90	81.8	149	60.1
C	5-10	44	31.9	10	9.1	54	21.8
D	> 10	20	14.4	4	3.6	24	9.6
TOTAL :		138	100.0	110	100.0	248	100.0

21. HOW LONG DOES IT TAKE TO GET TO THE NEAREST SUPERMARKET ?

A	< 10 MIN.	32	23.2	77	70.0	109	44.0
B	10-15	56	40.6	21	19.1	77	31.0
C	20-25	22	15.9	2	1.8	24	9.7
D	30 OR >	10	7.2	2	1.8	12	4.8
E	DK/NA	18	13.1	8	7.3	26	10.5
TOTAL :		138	100.0	110	100.0	248	100.0

22. HOW LONG DOES IT TAKE TO PARK AND START SHOPPING AT SUPERMKT ?

A	5 MIN	91	65.9	94	85.5	185	74.6
B	10	12	8.7	3	2.7	15	6.0
C	15	4	2.9	1	.9	5	2.0
D	20	6	4.4	0	0	6	2.4
E	25	0	0	0	0	0	0
F	30	0	0	0	0	0	0
G	DK/NA	25	18.1	12	10.9	37	15.0
		138	100.0	110	100.0	248	100.0

23. HOW LONG DOES IT TAKE TO CHECK OUT AT THE SUPERMARKET ?

A	5 MIN.	25	18.1	30	27.3	55	22.2
B	10	50	36.2	57	51.8	107	43.2
C	15	24	17.4	10	9.1	34	13.7
D	20	12	8.7	1	.9	13	5.2
E	25	2	1.5	0	0	2	.8
F	30	1	.7	0	0	1	.4
G	N/A	24	17.4	12	10.9	36	14.5
TOTAL :		138	100.0	110	100.0	248	100.0

24. IF COMMISSARY AND SUPERMARKET HAD = PRICES WHERE WOULD YOU SHOP ?

A	COMISARY	38	27.5	10	9.1	48	19.4
B	SUPERMKT	92	66.7	96	87.3	188	75.8
C	OTHER	8	5.8	4	3.6	12	4.8
TOTAL :		138	100.0	110	100.0	248	100.0

25. WHAT TYPE OF MERCHANDISE DO YOU PREFER MOST ?

A	NAME BND	101	73.2	92	83.7	193	77.8
B	STORE	20	14.5	96	87.3	116	12.1
C	GENERIC	17	12.3	8	7.3	25	10.1
TOTAL :		138	100.0	110	100.0	248	100.0

26. DO PAYDAYS OR HOLIDAYS AFFECT SHOPPING AT THE COMMISSARY ?

A	YES	49	35.5	6	5.5	55	22.2
B	SOMETIME	50	36.3	60	54.5	110	44.4
C	NO	36	26.0	39	35.5	75	30.2
D	N/A	3	2.2	5	4.5	8	3.2
TOTAL :		138	100.0	110	100.0	248	100.0

27. WHAT ARE THE 3 MOST SATISFACTORY ASPECTS OF COMMISSARY ?

A	PCE	118/13/ 3	32.4	108/ 1/ 0	33.0	243	32.7
B	CONV.	8/46/32	20.8	0/13/ 8	6.4	107	14.4
C	SEL.	2/30/30	15.0	0/25/34	17.9	121	16.3
D	MEAT	2/17/ 9	6.8	0/15/ 8	7.0	51	6.9
E	CHECK	4/17/17	9.2	1/40/20	18.4	99	13.3
F	OTHER	1/ 0/ 1	.5	0/ 0/ 4	1.2	6	.8
G	STK	1/ 8/12	5.1	0/ 9/16	7.6	46	6.2
H	MARK	1/ 4/18	5.4	1/ 7/11	5.8	42	5.5
I	PRDCE	1/ 2/11	3.4	0/ 0/ 6	1.8	20	2.7
J	EMPL	0/ 1/ 5	1.4	0/ 0/ 3	.9	9	1.2
TOTAL :		414	100.0	330	100.0	744	100.0

28. WHAT ARE THE 3 MOST UNSATISFACTORY ASPECTS OF COMMISSARY ?

A	PARK	27/19/18	15.5	2/ 2/14	5.5	82	11.0
B	WAIT	65/31/13	26.3	54/28/ 8	27.3	199	26.7
C	SEL	6/11/10	6.5	3/ 3/ 4	3.0	37	5.0
D	MEAT	2/16/ 6	5.8	2/ 4/ 8	4.2	38	5.1
E	TIPS	4/ 7/15	6.3	1/ 1/ 9	3.3	37	5.0
F	CRD	10/21/16	11.4	19/16/27	18.8	109	14.7
G	OTHER	2/ 0/ 2	1.0	0/ 2/ 1	.9	7	.9
H	PRDCE	1/ 0/ 4	1.2	3/ 3/ 5	3.3	16	2.2
I	STORE	0/ 6/ 4	2.4	1/ 3/ 3	2.1	17	2.3
J	STK	1/ 3/ 6	2.4	1/ 1/ 3	1.5	15	2.0
K	EMPL	4/ 4/ 7	3.6	2/ 5/ 8	4.6	30	4.0
L	OUT	16/20/35	17.2	21/42/19	24.9	153	20.6
M	MARK	0/ 0/ 2	.4	1/ 0/ 1	.6	4	.5
TOTAL :		414	100.0	330	100.0	744	100.0

APPENDIX C

LISTING OF QUESTIONNAIRE COMMENTS BY PAY GRADE

O-4

1. Personally, I get very irritated with some of the items they stock, such as, 25 lb. bags of rice, etc., especially when you see the same people buying them 2, 3 and 4 bags at a time. Nobody can eat that much rice! I suspect these people are buying for nonmilitary neighbors and friends.

2. I answered this questionnaire based strictly on Ft. Ord's comstore. I have shopped in many comstores, both in the U.S. and Europe, and FT. Ord is by far the worst! The reasons:
   a. Parking is always a problem
   b. Lines to get in (usually 15+ minutes!)
   c. Crowded aisles with people milling around everywhere
   d. Lots of checkout counters, but rarely are they all open!
   e. The produce is not as fresh and cheap as the local markets--Why not?
   f. The quality of meat is good, but usually the selection is poor. I often can't buy the cuts I want on the day that I am there.
   g. Late opening of stores--9:30 and 11:00!! (I like early openings)

   Now I do have some nice comments about the comstore:
   h. Easy check approval anduse of store coupons
   i. The express line allows 15 items--most allow only 10!
   j. The workers are helpful and pleasant
   k. The baggers are excellent!
   l. There is a large selection of gourmet and specialty food items.

   Now some suggestions:
   m. Pregnant women should be allowed to go to the front of the line (our comstore did that in Germany)
   n. Open comstore 7 days a week and open early! Not at 9:30 or 11:00, but at 8:00! People would certainly use it, especially those of us with small children!
   o. NPS should build their own store. With all the students at DLI, NPS and Fort Ord and the retirees, I think if there were 2 comstores, there would be no overcrowding or overuse of either store.
   p. Have max number of cashiers open during peak times

I love the commissaries and would be highly upset if the privilege was taken away!!

3. This is the first Army commissary we have dealt with, having used about 8 Navy commissaries elsewhere. This one has the worst selection, highest prices (for everything except bread) and meat which is about the same, and the rudest baggers and employees. I don't ever remember seeing anyone ever questioning a tip amount except at Ft. Ord, and that has happened to me on 3 separate occasions (I don't tip on percent, but on time spent--if everyone gave based on percentage, they'd be making more money than we do!). I now bag and transport my own groceries as a result of this problem. I don't like it, but I do not appreciate snide comments from these people. Tips take away from my savings, and I'm more than capable of bagging and carrying my own groceries to keep that savings.

    Despite those misgivings, prices are what's important, as long as the selection is acceptable, which it presently is. Without their savings, we'd eat as well in supermarket shopping, but we'd probably pay more and do without something else as a result.

4. The only reason I put up with the hassles and frustrations of shopping at the commissary is the significant savings over regular grocery stores. The prices on most items probably average 20%, but by the time they add the 5% surcharge to your bill, it drops to 15%. I wish they would raise the prices accordingly and do away with that tax on groceries.

    I do most of my shopping at the commissary, but I try to be careful of when I go. You cannot go shopping at your convenience, but rather when the crowd at the commissary will hopefully be at a minimum. If I am short of time, or just not in the mood to bother with the commissary, I will go to the grocery store and pick up the store brand items I like.

    I would not be opposed to doing away with the commissaries here in the United States if, when they get rid of them, they either add another allowance to the paycheck or in some way compensate for the 15-20% (or whatever the national average is) that it will cost us to do our shopping.

O-3

5. A very large population--(Ft. Ord-DLI-NPGS). Another facility should be available to lighten the crowds. The La Mesa store could be a great facility but the prices, selections and the quality is outrageous--not to mention the questionable intelligence of some of the workers.

I also think tipping the baggers is absurd. Most civilian stores provide the service without charge & pay their personnel a reasonable salary to make it worthwhile for them. I feel if I didn't tip them I'd be on the "s" list the next time I came in.

A suggestion might be to require A-J (last names) to go on even days and K-Z on the odd days as they did during the gas crunch. On paydays it takes 2-3 hours to complete your shopping, this is ridiculous and almost not worth the trouble for all you go through. I don't know of anyone that doesn't look at their dwindling shelves + refrigerator with dread that it's time to battle the crowds at the commissary again.

The commissary is a benefit--yes--but we pay dearly for it! If they can't do better then benefit is not even an applicable term--it's more like "you have no choice--you're in the military."

6. I support the commissary as a valuable part of our benefits/compensation--I would like to avoid the lines and crowds also, and if the gov't is thinking about closing commissaries, are they also thinking about increasing BAS to compensate?

7. This commissary seems grossly inadequate to fulfill the needs of the community it has to serve and has some of the most unpleasant cashiers I have ever encountered in a commissary.

8. I usually don't shop at the commissary on paydays or holidays if I can help it because of overcrowding and waiting in lines. I try to plan around those dates or go to Safeway.

This area needs a large commissary or the Navy or Presidio could use a commissary for itself.

9. Since Sept. 1982 I drove from Santa Cruz (40 mi.) once a month and spent approx. 2 hrs. shopping. Both my husband and I feel this is a valuable benefit. Erosion of such benefits affect our decisions to continue USN active duty.

Our last duty station was San Diego, where the commissary was much closer to home but the prices were closer to civilian prices and I shopped at a supermarket. However, Monterey-Santa Cruz-S.F. areas are at least 25% more expensive across the board. If USN expects us to move every 2-3 yrs. & live in such expensive areas, they need to up base pay or continue to provide these benefits.

10. The meat is always good quality but is not always available everytime I shop.

11. The prices on most items make the small inconveniences seem even smaller. If I do use a supermarket, it's usually because I need it now or the commissary is not open.

12. Ft. Ord has the largest commissary we've ever been stationed near, so to me, it has a good variety of items and is usually well stocked. However, my husband is the meat buyer and has concluded that their quality of beef is poor, so we go to a small meat market. I also go to small fresh produce markets in Seaside or Farmer's Market rather than fight the crowds at the commissary.

13. The Ft. Ord Commissary is the most crowded, most inconvenient commissary I have encountered.

14. I usually buy my vegetables at the supermarket because they are fresher and have a greater variety.

15. My husband refuses to go into the commissary. He went with me once and found the experience to be very dehumanizing.

16. I shop there strictly because of prices--nothing else!

17. This is the only commissary that I have had to wait for a cart prior to doing my shopping--the place is too small.

18. The surcharge masks real prices. Baggers expect 25 cents per bag and are generally rude. The cashiers are arrogant and unfriendly.
    Where is the savings between surcharge, tips, unpleasant people, time spent waiting and extra miles to travel?

O-2

19. The meat is sometimes good but usually very fatty.

E-6

20. I have gone to the commissary twice only to find that the computers are down. 25% or so is not worth the wait.

21. Please set times when active duty can shop but retired people can't.

22. Although the lines at the commissary do exist, I feel that it is because of the savings offered. Therefore, to me, the inconvenience is worth the savings.

23. Surcharge is nothing more than a big word for TAX! What or who gives the commissary the right to charge a surcharge?

E-5

24. If it wasn't for the delays and sometimes rude behavior of the cashiers, I would probably shop more at the commissary. I would like to see more generic products and a better selection and cut of meat.

25. For the volume of business the commissary does, the days and hours are totally ridiculous....

26. Need to improve the waiting system to get into the commissary. The size of aisles are too narrow, very uncomfortable. Improve quality of meat with less fat.

27. Vegetables, fruits and chicken are too expensive compared to outside prices.

28. I would like more of a variety of name brands and would like a bakery dept.

29. One time I almost didn't have enough money to cover my things, so when I could not give the bagger some money, one of the other baggers told him he should rip some of my bags.

30. Why don't you open another commissary in this area?

E-3

31. They need to be open later and on Mondays to be more convenient and effectively reduce the crowds.

32. I sincerely believe that the hours are very inconvenient to the early morning hours that military people have. The evening hours are inconvenient too. Open too late and close too early.

33. The commissary out here is run and looks like an old run down country store.

E-2

34. I always dread going to the commissary to buy anything because it takes so...long.

APPENDIX D

PRODUCE PRODUCTS

ITEM	PRODUCE	UNIT	BRAND	PC	SC	PC+SC
1	APPLES	LB.	DELICIOUS	.33	.02	.35
2	BANANAS	LB.	FRESH	.28	.01	.29
3	ORANGES	LB.	VALENCIA	.41	.02	.43
4	POTATOES	LB.	WHITE	.26	.01	.27
#5	ONIONS	LB.	WHITE	.39	.02	.41
#6	CABBAGE	LB.	FRESH	.36	.02	.38
7	CARROTS	PKG.	FRESH	.23	.01	.24
8	CELERY	PKG.	FRESH	.50	.03	.53
9	LETTUCE	HEAD	FRESH	.26	.01	.27
#10	BELL PEPPERS	LB.	FRESH	.59	.03	.62
11	TOMATOES	LB.	FRESH	.39	.02	.41
				3.99	.21	4.20

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
1	.85	.79	.65	.76	.42	54.61
2	.25	.39	.32	.32	.03	8.13
3	.69	.59	.59	.62	.19	30.94
4	.45	.39	.43	.42	.15	35.51
#5	.39	.33	.49	.40	-.01	-1.53
#6	.19	.19	.14	.17	-.20	-118.08
7	.59	.29	.19	.36	.12	32.29
8	.89	.49	.89	.76	.23	30.62
9	.33	.39	.29	.34	.06	18.91
#10	.49	.69	.59	.59	-.03	-5.00
11	.49	.89	.39	.59	.13	30.59
	5.61	5.43	4.97	5.34		

PC = COMMISSARY SHELF PRICE
SC = 5 PERCENT SURCHARGE ON COMMISSARY SHELF PRICES
PC + SC = COMMISSARY PURCHASE PRICE
PS1 = SHELF PRICE AT SUPERMARKET 1 (SAFEWAY)
PS2 = SHELF PRICE AT SUPERMARKET 2 (ALPHA-BETA)
PS3 = SHELF PRICE AT SUPERMARKET 3 (LUCKY)
PS XBAR = MEAN ITEM SHELF PRICE AT THE SUPERMARKET
SAVE = MEAN ITEM DOLLAR SAVINGS WHEN PURCHASED AT COMMISSARY
APS = AVERAGE PERCENT SAVED WHEN ITEM PURCHASED AT COMMISSARY
NOTE: AN # DENOTES POSSIBLE DISSAVINGS ON ITEM AT COMMISSARY

MEAT PRODUCTS

ITEM	MEATS	UNIT	BRAND	PC	SC	PC+SC
1	BEEF	LB.	CORNED	1.84	.09	1.93
2	BEEF (LEAN)	LB.	GROUND	1.10	.06	1.16
#3	STEAK	LB.	RIB	2.18	.11	2.29
4	STEAK	LB.	CUBED	2.75	.14	2.89
5	STEAK	LB.	SIRLOIN	2.59	.13	2.72
6	BEEF	LB.	CHUCK ROAST	2.08	.10	2.18
7	STEAK	LB.	T-BONE	2.95	.15	3.10
8	BEEF	LB.	SPARE RIBS	.79	.04	.83
9	PORK (CENTER CUT)	LB.	CHOPS	2.05	.10	2.15
10	PORK	LB.	LOIN ROAST	1.15	.06	1.21
11	TURKEY (FROZEN)	LB.	WHOLE	.75	.04	.79
12	CHICKEN (FRESH)	LB.	WHOLE	.69	.04	.73
13	CHICKEN (FRESH)	LB.	CUT	.76	.04	.80
14	FRANKFURTERS	LB.	BALL PARK	1.35	.07	1.42
15	CANNED HAM	24 OZ.	ARMOR	3.40	.17	3.57
16	PICNIC HAM	LB.	NO LABEL	1.19	.06	1.25
17	SMOKED HAM	LB.	NO LABEL	1.24	.06	1.30
18	SALAMI	8 OZ.	OSCAR MAYER	.91	.05	.96
19	BOLOGNA	8 OZ.	OSCAR MAYER	.87	.04	.91
20	BACON	LB.	OSCAR MAYER	1.91	.10	2.01
21	SLICED CHICKEN	2.5 OZ.	LAND O FROST	.49	.03	.52
				32.95	1.74	34.69

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
1	2.55	2.49	2.21	2.42	.49	20.06
2	1.59	1.39	1.64	1.54	.39	25.00
#3	2.59	1.99	1.79	2.12	-.17	-7.80
4	3.49	3.29	3.19	3.32	.44	13.11
5	2.69	2.99	2.98	2.89	.17	5.79
6	1.99	2.29	2.69	2.32	.14	6.00
7	3.59	3.79	3.98	3.49	.39	11.16
8	1.49	1.19	.89	1.19	.36	30.29
9	3.19	3.69	2.79	3.22	1.07	33.22
10	1.99	1.99	1.89	1.96	.75	38.29
11	.99	.99	1.09	1.02	.24	23.05
12	.99	.79	.61	.80	.07	9.06
13	.99	.99	.79	.92	.13	13.57
14	1.89	1.95	1.87	1.90	.49	25.53
15	5.05	5.29	5.15	5.16	1.59	30.86
16	1.39	1.69	1.29	1.46	.21	14.22
17	1.79	1.49	1.29	1.52	.22	14.53
18	1.49	1.49	1.33	1.44	.48	33.49

DAIRY PRODUCTS

ITEM	DAIRY	UNIT	BRAND	PC	SC	PC+SC
1	MILK	GAL.	HOMOGENIZED	1.50	.08	1.58
2	MILK	GAL.	LOW FAT	1.38	.07	1.45
3	EGGS	DOZ.	LARGE AA	.73	.04	.77
4	BUTTER	LB.	LAND-O-LAKES	1.75	.09	1.84
5	STICK MARGARINE	LB.	PARKAY	.62	.03	.65
6	SOFT MARGARINE	LB.	PARKAY	.62	.03	.65
7	SLICED CHEESE	12 OZ.	KRAFT	1.48	.07	1.55
8	CHEDDAR CHEESE	10 OZ.	KRAFT	1.34	.07	1.41
9	SWISS SLICED	6 OZ.	KRAFT	1.04	.05	1.09
10	CANNED BISCUITS	8 OZ.	PILLSBURY	.82	.04	.86
				11.25	.59	11.84

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
1	1.99	2.01	1.95	1.98	.41	20.59
2	1.65	1.95	1.84	1.81	.36	20.09
3	.88	.95	.91	.91	.15	16.08
4	2.15	1.99	2.05	2.06	.23	10.95
5	.83	.73	.66	.74	.09	12.03
6	1.19	1.09	.92	1.07	.42	38.97
7	1.89	1.59	1.79	1.76	.20	11.54
8	1.39	1.95	1.89	1.91	.50	26.34
9	1.75	1.59	1.48	1.61	.52	32.03
10	1.29	1.25	1.23	1.26	.40	31.49
	15.51	15.10	14.72	15.11		

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FROZEN PRODUCTS

ITEM	FROZEN	UNIT	BRAND	PC	SC	PC+SC
1	ORANGE JUICE	16 OZ.	MINUTE MAID	1.65	.08	1.73
2	ICE CREAM	1/2 GAL.	DREYERS	3.06	.15	3.21
3	WHIPPED TOPPING	12 OZ.	BIRDS EYE	1.24	.06	1.30
4	TURKEY DINNER	18 OZ.	HUNGRY MAN	1.84	.09	1.93
5	PEAS	10 OZ.	GREEN GIANT	.73	.04	.77
6	PEPPERONI PIZZA	19 OZ.	CELESTE	2.76	.14	2.90
7	BRUSSEL SPROUTS	10 OZ.	GREEN GIANT	.69	.04	.73
8	CORN	16 OZ.	C & W	.95	.05	1.00
9	FRENCH FRIES	40 OZ.	ORE-IDA	1.60	.08	1.68
10	CORN-ON-THE-COB	8 EARS	BIRDS EYE	1.21	.06	1.27
				15.69	.83	16.52

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
1	1.95	2.13	2.09	2.06	.32	15.76
2	4.19	4.19	4.15	4.18	.96	23.07
3	1.53	1.43	1.33	1.43	.13	8.95
4	2.65	2.53	2.39	2.52	.59	23.44
5	1.23	1.29	1.11	1.21	.44	36.65
6	3.99	3.99	3.41	3.80	.90	23.67
7	1.23	1.21	1.19	1.21	.49	40.12
8	1.55	1.39	1.29	1.41	.41	29.26
9	2.19	2.29	2.13	2.20	.52	23.75
10	1.85	1.69	1.63	1.72	.45	26.28
	22.36	22.14	20.72	21.74		

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GROCERY PRODUCTS

ITEM	GROCERY	UNIT	BRAND	PC	SC	PC+SC
1	JAR BABY FOOD	4.5 OZ.	GERBER	.16	.01	.17
2	OATMEAL BABY FOOD	8 OZ.	GERBER	.52	.03	.55
3	MEAT BABY FOOD	4.5 OZ.	GERBER	.24	.01	.25
4	CORN FLAKES	18 OZ.	KELLOGGS	1.20	.06	1.26
5	SUGAR CORN FLAKES	20 OZ.	KELLOGGS	1.80	.09	1.89
6	WHEAT CEREAL	18 OZ.	WHEATIES	1.34	.07	1.41
7	ALL-PURPOSE FLOUR	5 LB.	GOLD MEDAL	.99	.05	1.04
8	QUICK-COOK RICE	28 OZ.	MINUTE	1.71	.09	1.80
9	POWDERED SUGAR	1 LB.	C & H	.51	.03	.54
10	GOLDEN BROWN SUGAR	1 LB.	C & H	.51	.03	.54
11	GRANULATED SUGAR	5 LB.	C & H	1.59	.08	1.67
12	WHITE BREAD LOAF	24 OZ.	KILPATRICK	.38	.02	.40
13	FRANKFURTER ROLLS	PKG(8)	KILPATRICK	.37	.02	.39
14	HAMBURGER ROLLS	PKG(8)	KILPATRICK	.44	.02	.46
15	WHEAT BREAD LOAF	24 OZ.	ROMAN MEAL	.77	.04	.81
16	COOKIES CRM. FILL	20 OZ.	OREO	1.36	.07	1.43
#17	FUDGE COOKIES	11.5 OZ.	MOTHERS	1.23	.06	1.29
18	GRAHAM CRACKERS	16 OZ.	SUNSHINE	1.16	.06	1.22
19	SODA CRACKERS	16 OZ.	PREMIUM	.87	.04	.91
20	BISCUIT MIX	60 OZ.	BISQUICK	1.73	.09	1.82
21	WHITE CAKE MIX	18.25 OZ.	BETTY CROCKR	.69	.04	.73
22	CHOC. FROSTING	16 OZ.	BETTY CROCKR	.99	.05	1.04
23	BROWNIE MIX	21.5 OZ.	BETTY CROCKR	1.09	.06	1.15
24	VEGETABLE SOUP	10.5 OZ.	CAMPBELLS	.29	.02	.31
25	TOMATO SOUP	10.75 OZ.	CAMPBELLS	.27	.01	.28
26	CANNED CORN	8.75 OZ.	DEL MONTE	.34	.02	.36
27	CAN GREEN BEANS	8 OZ.	DEL MONTE	.30	.02	.32
28	MIXED VEGETABLES	16 OZ.	DEL MONTE	.41	.02	.43
29	CHUNK TUNA	12.5 OZ.	CHICK-O-SEA	1.35	.07	1.42
30	CAN BEEF STEW	24 OZ.	DINTY MOORE	1.34	.07	1.41
31	SPAM	12 OZ.	SPAM	1.21	.06	1.27
32	CAN PORK & BEANS	16 OZ.	CAMPBELLS	.33	.02	.35
33	SPHAGETTI SAUCE	32 OZ.	RAGU	1.24	.06	1.30
34	SPHAGETTI NOODLES	16 OZ.	GOLDEN GRAIN	.42	.02	.44
35	STRAWBRY PRESERVES	18 OZ.	SMUCKERS	1.30	.07	1.37
36	MAPLE SYRUP	36 OZ.	LOG CABIN	2.41	.12	2.53
37	FRENCH DRESSING	16 OZ.	KRAFT	1.42	.07	1.49
38	1000 IS. DRESSING	16 OZ.	KRAFT	1.39	.07	1.46
39	CATSUP	32 OZ.	HEINZ	1.27	.06	1.33
40	REAL MAYONNAISE	32 OZ.	KRAFT	1.63	.08	1.71
#41	REG DRIP COFFEE	2 LB.	MAXWELL HSE.	4.59	.23	4.82
42	INSTANT COFFEE	8 OZ.	TASTERS CSE.	4.77	.24	5.01
#43	INST. DECAF COFFEE	8 OZ.	SANKA	4.83	.24	5.07
44	INSTANT TEA	3 OZ.	NESTEA	2.07	.10	2.17
45	TEA BAGS	48 CT.	LIPTON	1.41	.07	1.48
46	DILL PICKLES	32 OZ.	VLASIC	1.16	.06	1.22
47	SWEET PICKLES	22 OZ.	VLASIC	.97	.05	1.02
48	VEGETABLE OIL	48 OZ.	WESSON	2.08	.10	2.18
#49	SHORTENING	48 OZ.	CRISCO	2.98	.15	3.13

50	INST. POTATOES	13.75	OZ.	POTATO BUDS	.99	.05	1.04
51	FLAVORED GELATIN	3	OZ.	JELL-O	.26	.01	.27
52	INST. CHOC PUDDING	4	OZ.	JELL-O	.38	.02	.40
53	RAISINS	9	OZ.	SUN-MAID	.83	.04	.87
54	BABY FORMULA RTF	48	OZ.	SIMILAC	3.22	.16	3.38
55	CHOCOLATE SYRUP	16	OZ.	HERSHEYS	.60	.03	.63
56	CLING PEACHES	16	OZ.	DEL MONTE	.54	.03	.57
57	FRUIT COCKTAIL	30	OZ.	DEL MONTE	.93	.05	.98
58	ELBOW MACARONI	16	OZ.	GOLDEN GRAIN	.52	.03	.55
59	CHUNKY BEEF SOUP	19	OZ.	CAMPBELLS	.93	.05	.98
60	BARBEQUE SAUCE	18	OZ.	KRAFT	.98	.05	1.03
61	FRUIT PASTRIES	6	CT.	POP-TARTS	.73	.04	.77
62	TOMATO PASTE	12	OZ.	CONTADINA	.53	.03	.56
63	MAC & CHEESE DIN	7	OZ.	KRAFT	.41	.02	.43
64	APPLESAUCE	25	OZ.	MOTTS	.82	.04	.86
65	SOY SAUCE	20	OZ.	KIKKOMAN	1.39	.07	1.46
66	ORIENTAL NOODLES	3	OZ.	TOP RAMEN	.11	.01	.12
67	CORN CHIPS	12	OZ.	DORITOS	1.45	.07	1.52
68	POTATO CHIPS	8	OZ.	LAYS	.99	.05	1.04
69	BEEF RAVIOLI	15	OZ.	CHF BOYARDEE	.59	.03	.62
70	INST. BEVERAGE MIX	.1	OZ.	KOOL-AID	.11	.01	.12
71	TOLL HOUSE CHIPS	12	OZ.	HERSHEYS	1.50	.08	1.58
72	GRATED PARMESAN	8	OZ.	KRAFT	2.00	.10	2.10
73	COFFEE CREAMER	16	OZ.	COFFEE MATE	1.75	.09	1.84
74	REG PEANUT BUTTER	18	OZ.	SKIPPY	1.17	.06	1.23
75	APPLE JUICE	64	OZ.	MOTTS	1.27	.06	1.33
*76	COLA BEVERAGE	6-PACK		COKE	1.26	.06	1.32
*77	NON-COLA BEVERAGE	6-PACK		DIET 7-UP	1.20	.06	1.26
78	FRUIT PUNCH	46	OZ.	HAWAIIAN PUN	.59	.03	.62
79	FRUIT DRINK	46	OZ.	HI-C	.61	.03	.64
80	FRUIT DRINK	10-PACK		CAPRI-SONNE	2.49	.13	2.62
*81	REG. CIGARETTES		CTN.	WINSTON	5.71	.29	6.00
					100.03	5.27	105.30

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
1	.26	.28	.26	.27	.10	37.00
2	.65	.69	.65	.66	.12	17.69
3	.37	.38	.37	.37	.12	32.50
4	1.59	1.47	1.39	1.48	.22	15.06
5	2.55	2.39	2.29	2.41	.52	21.58
6	1.89	2.23	1.91	2.01	.60	30.00
7	1.09	1.09	1.07	1.08	.04	4.05
8	2.39	2.35	2.19	2.31	.52	22.27
9	.61	.59	.61	.60	.07	11.24
10	.61	.59	.61	.60	.07	11.24
11	1.97	1.93	1.96	1.95	.28	14.53
12	1.26	1.29	1.16	1.24	.84	67.74
13	.59	.59	.59	.59	.20	34.15
14	.59	.59	.59	.59	.13	21.70
15	1.45	1.45	1.45	1.45	.64	44.24
16	2.39	2.39	2.26	2.35	.92	39.15
#17	1.29	1.29	1.12	1.23	-.06	-4.72

18	1.49	1.65	1.54	1.56	.34	21.92
19	1.35	1.25	1.19	1.26	.35	27.69
20	2.45	2.37	2.19	2.34	.52	22.26
21	1.19	1.03	.97	1.06	.34	31.87
22	1.63	1.45	1.45	1.58	.54	34.07
23	1.95	1.79	1.67	1.80	.66	36.53
24	.45	.43	.37	.42	.11	26.92
25	.33	.33	.32	.33	.04	13.21
26	.47	.46	.43	.45	.10	21.25
27	.47	.45	.53	.48	.17	34.83
28	.73	.63	.61	.66	.23	34.44
29	1.49	1.53	1.45	1.49	.07	4.87
30	2.07	1.95	1.75	1.92	.52	26.85
31	1.49	1.49	1.47	1.48	.21	14.35
32	.55	.55	.50	.53	.19	35.83
33	2.25	2.09	1.95	2.10	.80	37.90
34	.79	.77	.73	.76	.32	42.23
35	2.29	1.89	1.93	2.04	.67	32.98
36	3.45	3.17	3.14	3.25	.72	22.22
37	2.38	2.14	1.87	2.13	.64	30.00
38	2.15	1.99	1.57	1.90	.44	23.32
39	1.75	1.65	1.09	1.50	.16	10.90
40	1.79	1.99	1.69	1.82	.11	6.13
#41	4.69	4.69	4.69	4.69	-.13	-2.76
42	5.99	5.99	6.19	6.06	1.05	17.31
#43	4.89	4.77	4.85	4.84	-.24	-4.86
44	2.99	2.95	2.99	2.98	.80	26.98
45	1.93	1.95	2.15	2.01	.53	26.34
46	1.85	1.69	1.63	1.72	.51	29.32
47	1.59	1.55	1.37	1.50	.49	32.25
48	3.29	2.99	2.95	3.08	.89	29.01
#49	2.99	2.69	3.19	2.96	-.17	-5.83
50	1.53	1.20	1.32	1.35	.31	23.00
51	.41	.41	.40	.41	.13	32.87
52	.57	.55	.51	.54	.14	26.56
53	1.39	1.39	1.19	1.32	.45	34.14
54	3.70	3.65	3.65	3.67	.29	7.79
55	1.09	.99	.97	1.02	.39	38.03
56	.89	.87	.87	.88	.31	35.32
57	1.35	1.24	1.22	1.27	.29	23.11
58	.65	.59	.57	.60	.06	9.50
59	1.29	1.31	1.21	1.27	.29	23.11
60	1.13	1.19	1.07	1.13	.10	8.94
61	1.25	1.23	.79	1.09	.32	29.68
62	.87	.83	.88	.86	.30	35.29
63	.49	.57	.56	.54	.11	20.23
64	1.25	1.23	1.05	1.18	.32	26.83
65	1.89	1.99	1.82	1.90	.44	23.18
66	.33	.33	.31	.32	.21	64.28
67	2.11	2.11	2.05	2.09	.57	27.15
68	1.47	1.47	1.39	1.44	.40	27.98
69	1.09	1.03	.92	1.01	.39	38.87
70	.17	.19	.16	.17	.06	33.37
71	2.25	1.99	1.93	2.06	.48	23.42
72	2.99	2.89	2.43	2.77	.67	24.19

73	2.55	2.29	2.29	2.38	.54	22.69
74	1.79	1.79	1.79	1.79	.56	31.37
75	2.39	2.19	2.17	2.25	.92	40.73
*76	1.89	1.89	1.81	1.86	.54	29.00
*77	1.89	1.89	1.86	1.88	.62	32.98
78	.89	.93	.93	.92	.30	32.42
79	.99	1.05	.69	.98	.34	34.42
80	2.29	3.09	2.79	2.72	.11	4.00
*81	8.49	8.55	8.65	8.56	2.57	29.99
	140.25	136.83	131.35	136.14		

PC = COMMISSARY SHELF PRICE
SC = 5 PERCENT SURCHARGE ON COMMISSARY SHELF PRICES
PC + SC = COMMISSARY PURCHASE PRICE
PS1 = SHELF PRICE AT SUPERMARKET 1 (SAFEWAY)
PS2 = SHELF PRICE AT SUPERMARKET 2 (ALPHA-BETA)
PS3 = SHELF PRICE AT SUPERMARKET 3 (LUCKY)
PS XBAR = MEAN ITEM SHELF PRICE AT THE SUPERMARKET
SAVE = MEAN ITEM DOLLAR SAVINGS WHEN PURCHASED AT COMMISSARY
APS = AVERAGE PERCENT SAVED WHEN ITEM PURCHASED AT COMMISSARY
NOTE: AN # DENOTES POSSIBLE DISSAVINGS ON ITEM AT COMMISSARY
AN * INDICATES THAT CALIFORNIA STATE SALES TAX APPLIES

HOUSEHOLD GOODS

ITEM	HOUSEHOLD	UNIT	BRAND	PC	SC	PC+SC
* 1	DISINFECT. SPRAY	12 OZ.	LYSOL	1.85	.09	1.94
* 2	FLOOR CLEANER	32 OZ.	SPIC-N-SPAN	1.73	.09	1.82
* 3	DISHWASHER DET.	50 OZ.	SUNLIGHT	2.18	.11	2.29
* 4	CLOTHES DETERG.	84 OZ.	TIDE	2.95	.15	3.10
* 5	BATH SOAP	5 OZ.	COAST	.52	.03	.55
* 6	DISHWASH LIQUID	32 OZ.	JOY	1.79	.09	1.88
* 7	STEEL WOOL PADS	10 CT.	SOS	.85	.04	.89
* 8	FACIAL TISSUE	200 CT.	SCOTTIES	.59	.03	.62
* 9	TOILET TISSUE	4 ROLLS	CHARMIN	.99	.05	1.04
*10	PAPER TOWELS	1 ROLL	BOUNTY	.67	.03	.70
*11	ALUMINUM FOIL	75 SQ.FT.	REYNOLDS	1.39	.07	1.46
*12	PLASTIC WRAP	200 SQ.FT.	GLAD	1.19	.06	1.25
*13	FABRIC SOFTENER	40 CT.	BOUNCE	1.67	.08	1.75
*14	TRASH BAGS	20 CT.	GLAD	.98	.05	1.03
*15	BLEACH	64 OZ.	CLOROX	.57	.03	.60
				19.87	1.05	20.92

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
* 1	2.85	2.79	2.63	2.76	.81	29.54
* 2	2.23	2.19	2.06	2.16	.34	15.90
* 3	2.57	2.99	2.77	2.78	.49	17.56
* 4	3.29	3.69	3.72	3.57	.47	13.15
* 5	.58	.69	.63	.65	.13	16.00
* 6	1.99	2.29	2.19	2.16	.28	12.85
* 7	1.33	1.53	1.49	1.45	.56	38.45
* 8	.79	1.05	.89	.91	.29	31.92
* 9	1.45	1.41	1.28	1.38	.34	24.67
*10	.99	.97	.89	.95	.25	25.95
*11	1.99	1.99	1.83	1.94	.48	24.64
*12	1.85	1.79	1.65	1.76	.51	29.14
*13	2.75	2.65	2.49	2.63	.88	33.33
*14	1.99	1.69	1.59	1.76	.73	41.42
*15	.83	.89	.75	.82	.23	27.31
	27.48	28.61	26.91	27.67		

PC = COMMISSARY SHELF PRICE
SC = 5 PERCENT SURCHARGE ON COMMISSARY SHELF PRICE
PC + SC = COMMISSARY PURCHASE PRICE
PS1 = SHELF PRICE AT SUPERMARKET 1 (SAFEWAY)
PS2 = SHELF PRICE AT SUPERMARKET 2 (ALPHA-BETA)
PS3 = SHELF PRICE AT SUPERMARKET 3 (LUCKY)
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NOTE: AN * INDICATES THAT CALIFORNIA STATE SALES TAX APPLIES

19	1.29	1.29	1.13	1.24	.32	26.13
20	2.74	2.79	2.38	2.64	.63	23.94
21	.49	.59	.49	.52	.01	1.69
	44.26	44.45	43.57	43.99		

PC = COMMISSARY SHELF PRICE
SC = 5 PERCENT SURCHARGE ON COMMISSARY SHELF PRICES
PC + SC = COMMISSARY PURCHASE PRICE
PS1 = SHELF PRICE AT SUPERMARKET 1 (SAFEWAY)
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SAVE = MEAN ITEM DOLLAR SAVINGS WHEN PURCHASED AT COMMISSARY
APS = AVERAGE PERCENT SAVED WHEN ITEM PURCHASED AT COMMISSARY
NOTE: AN # DENOTES POSSIBLE DISSAVINGS ON ITEM AT COMMISSARY

HEALTH AND BEAUTY AIDS

ITEM	HEALTH & BEAUTY	UNIT	BRAND	PC	SC	PC+SC
*1	TOOTHPASTE	7 OZ.	COLGATE	.95	.05	1.00
*2	SHAVING CREAM	11 OZ.	GILLETTE	1.80	.09	1.89
*3	RAZOR BLADES	5 CT.	TRAC II	1.79	.09	1.88
*4	STICK DEODORANT	2 OZ.	ARRID	1.73	.09	1.82
*5	HAIR SHAMPOO	7 OZ.	PRELL	1.94	.10	2.04
*6	BAND AIDS	50 CT.	J & J	1.70	.09	1.79
*7	FEMININE TAMPONS	40 CT.	TAMPAX	2.57	.13	2.70
*8	DISPOSABLE DIAPER	24 CT.	PAMPERS	3.54	.18	3.72
*9	BABY POWDER	14 OZ.	J & J	1.52	.08	1.60
				17.50	.92	18.42

ITEM	PS1	PS2	PS3	PS $\bar{X}$	SAVE	APS
*1	1.15	1.79	1.14	1.36	.36	26.65
*2	2.79	2.00	1.99	2.26	.37	16.37
*3	2.65	2.49	2.29	2.48	.60	24.11
*4	2.85	2.69	2.16	2.57	.75	29.23
*5	3.75	3.74	2.87	3.45	1.42	41.01
*6	2.45	2.49	1.99	2.31	.53	22.73
*7	3.79	3.30	3.69	3.59	.90	24.90
*8	3.79	3.75	3.73	3.76	.04	1.06
*9	2.39	2.59	1.99	2.32	.73	31.31
	25.61	24.84	21.85	24.10		

PC = COMMISSARY SHELF PRICE
SC = 5 PERCENT SURCHARGE ON COMMISSARY SHELF PRICES
PC + SC = COMMISSARY PURCHASE PRICE
PS1 = SHELF PRICE AT SUPERMARKET 1 (SAFEWAY)
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NOTE: AN * INDICATES THAT CALIFORNIA STATE SALES TAX APPLIES

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